

EXECUTIVE SUMMARY

This Phase II Environmental Site Assessment (ESA) Report has been prepared for the United States Army Corps of Engineers (USACE)-Tulsa District by ALL Consulting under contract No. W912BV-08-D-2008, Task Order 0021. This ESA is funded by the U.S. Environmental Protection Agency's (USEPA) Targeted Brownfields Assessment (TBA) Program. The USEPA Region 6 Brownfields Team tasked USACE-Tulsa District to execute the ESA. This Report describes the field activities carried out to perform the Phase II ESA on the Fintube TBA Site located in Tulsa, Oklahoma. The purpose of the Phase II ESA is to evaluate the property and to sample the potential sources of contamination identified in the previous Phase I ESA. Existing data has been obtained from a Phase I ESA completed by ALL Consulting dated September 28, 2009.

The Site is bounded on the west by a railroad easement; on the east by N. Lansing Ave. and Highway 75; on the north by Lee Supply Co.; and on the south by E. Archer St. and Highway 244 in the City of Tulsa, Tulsa County, Oklahoma. The Site is located northeast of downtown Tulsa, Oklahoma, within an area consisting of industrial, commercial, and residential properties. The Site currently consists of two building complexes and two vacant lots. The southern complex, identified as the Evans Building Complex, consists of three north-south oriented buildings to the north and two east-west oriented buildings to the south. The northern complex, identified as the Fintube Building Complex, consists of four buildings oriented north-south and one smaller building to the southeast that is oriented east-west.

Field activities performed during this Phase II ESA included drilling ten (10) soil borings, sampling surface and subsurface soils, sampling groundwater from the temporary wells, well abandonment, temporary storage and disposal of investigative-derived waste, inspection of suspect Lead-Based Paint (LBP), and inspection and sampling of suspect Asbestos Containing Material (ACM) and Other Regulated Material (ORM). A total of ninety-seven (97) surface soil samples, thirteen (13) subsurface soil samples, thirteen (13) groundwater samples, twenty (20) suspect LBP samples, and thirty (30) suspect ACM samples were collected. The soil samples were selectively analyzed for the presence Volatile Organic Compounds (VOCs); Semi-volatile Organic Compounds (SVOCs); Total Petroleum Hydrocarbons (TPH) as Gasoline Range Organics (>C6 to C12), Diesel Range Organics (>C12 to C28), and Lube Oil Range Organics

(>C28 to C35); herbicides; Polychlorinated Biphenyls (PCBs); and Priority Pollutant (PP) Metals. The groundwater samples were selectively analyzed for the presence of VOCs, SVOCs, Diesel-Range Organics (DRO), Gasoline Range Organics (GRO), herbicides, PCBs, and PP Metals.

Surface and subsurface (greater than 6 inches) soils analytical results were compared to USEPA Regional Screening Levels (RSLs) for industrial soil screening levels. The analytical results for groundwater testing were screened against the USEPA MCLs or USEPA RSLs for Residential Tap Water (USEPA 2010) when MCLs were not available. DRO and GRO values were compared to the action level limits set by the Oklahoma Department of Environmental Quality (ODEQ). All exceedances for surface soil, soil boring, and groundwater samples are tabulated in **Section 6: Summary**.

- A total of ninety-seven (97) surface soil samples were collected from April 13 to April 15, 2010. Of the ninety-seven surface soil samples, 13 were collected from the ten (10) soil boring locations and the remaining eighty-four surface soil samples were collected in a 115-foot grid pattern throughout the Site. Of the surface soil samples collected at soil boring locations, ten (10) were normal samples, one (1) sample was a duplicate, one (1) sample was a Matrix Spike (MS), and one (1) sample was an Matrix Spike Duplicate (MSD). Of the grid surface soil samples, seventy-one (71) were normal samples, seven (7) samples were duplicates, three (3) samples were an MS, and three (3) samples were an MSD. Each of the thirteen (13) surface soil samples collected at soil boring locations and 27 (approximately 30%) of the grid surface soil samples were analyzed for VOCs, SVOCs, TPH, PCBs, herbicides, and PP Metals. The remaining fifty-seven (57) surface soil samples were analyzed for TPH, PCBs, and PP Metals only. Arsenic exceeded its RSL of 1.6 mg/kg in all but three (78 of 81) normal surface soil samples tested for metals. Only samples FIN-SSB11, FIN-SSC07, and FIN-SSD04 were below the RSL of 1.6 mg/kg for arsenic. Samples FIN-SSC14, FIN-SSD10, FIN-SSD11, FIN-SSD14, and FIN-SSD15 exceeded the Lead RSL of 800 mg/kg. Twelve (12) surface soil samples exceeded RSLs for SVOCs in one or more parameters. No VOCs parameters exceeded RSLs. No herbicides exceeded RSLs. No samples exceeded TPH GRO (>C6-C12) action limits of 500 mg/kg set by ODEQ. Nine (9) of the samples exceeded TPH DRO (>C12-C28) action limits of 2,500 mg/kg set by ODEQ. Seven (7) samples exceeded ODEQ's action limits of 5,000 mg/kg for TPH Lube Oil (>C28-C35). Fifteen (15) samples exceeded the ODEQ

Tier 1 generic TPH (>C6-C35) action level. Thirteen (13) surface soil samples exceeded RSLs for PCBs in one or more parameters.

- A total of thirteen (13) subsurface soil samples were collected from varying depths from the ten (10) soil borings. This total includes ten (10) normal samples, one (1) duplicate, one (1) MS, and one (1) MSD. Sample FIN-SB01-DS01-01 exceeded SVOC RSLs for Benzo(a)pyrene, Benzo(b)fluoranthene, and Dibenzo(a,h)anthracene. Sample FIN-SB04-DS01-01 exceeded the RSL of 740 µg/kg for Aroclor 1260 at 124,000 µg/kg. The only other parameter to exceed RSLs for subsurface soil samples was Arsenic in all samples. No other parameters exceeded RSLs.
- It should be noted that Arsenic was the most prevalent analyte detected above its regulatory limit of 1.6 mg/kg in soils. However, the U.S. Geological Survey (USGS) has also reported that naturally occurring Arsenic levels in Oklahoma soils typically range from 0 to 32 mg/kg. Additionally, mean soil metals background concentrations for Oklahoma as reported by the USEPA in Office of Solid Waste and Emergency Response Directive 9285.7-55 (EPA 2003) for Arsenic was reported at 7.0 mg/kg.
- A total of thirteen (13) groundwater samples were taken from the ten (10) soil borings. This total includes ten (10) normal samples, one (1) duplicate, one (1) MS, and one (1) MSD. Five (5) samples exceeded Metals RSLs in one or more parameters, with Arsenic being the most common parameter exceeded. The VOC parameter, Chloroform, exceeded its USEPA Tap water screening level of 0.15 µg/L in samples FIN-SB01-GW01-01 and FIN-SB10-GW01-01, with the results “J” flagged as estimated value at 0.77J µg/L and 0.67J µg/L, respectively. The SVOC parameter 1,2,4-Trichlorobenzene exceeded its MCL of 70 µg/L in sample FIN-SB04-GW01-01 at 846 µg/L. Naphthalene also exceeded its MCL of 0.14 µg/L in sample FIN-SB04-GW01-01 at 2.4 µg/L. No other parameters exceeded MCLs or RSLs.
- An asbestos inspection was conducted on April 16, 2010, at the Fintube TBA Site by a USEPA accredited and Oklahoma Department of Labor (ODOL) licensed asbestos inspector/management planner with Environmental Hazard Control, Inc (EHCI). During the inspection, there were sixteen (16) homogeneous areas identified for sample collection and analysis from the Fintube Building Complex and seven (7) homogeneous

areas from the Evans Building Complex. After collection of the Suspect ACM, the samples were sent to Quantem Laboratories in Oklahoma City, Oklahoma, for analysis using polarized light microscopy. A total of twenty-one (21) samples were analyzed from the sixteen (16) homogeneous areas within Fintube Building Complex and nine (9) samples were analyzed from the seven (7) homogeneous areas within Evans Building Complex. The laboratory analysis determined that approximately 10 linear feet and 10 square feet of asbestos containing thermal system pipe fittings and floor debris located in locker room area of Fintube main building and approximately 34 linear feet of asbestos containing thermal system pipe insulation located in main warehouse of Evans facility are considered to be Regulated Asbestos Containing Materials (RACM). **Appendix F** contains the full asbestos inspection report.

- A LBP inspection was conducted on April 16, 2010, at the Fintube TBA Site by an accredited and licensed LBP Inspector/Risk Assessor (License # OKRASR11105) with EHCI. A total of 73 samples from the Fintube Building Complex and 71 samples from the Evans Building complex were screened using a Scitec XRF-MAP 4 Spectrum Analyzer in the unlimited mode. Based on the screenings, ten (10) paint chip samples were collected from each of the building complexes (20 total samples) and submitted to Quantem Laboratories for lead analysis using USEPA Method 7420, Atomic Absorption. The results of the screening and lab analysis indicated that LBP was present within both buildings above the permissible level of 1.0 mg/cm², or 5,000 parts per million in several areas. **Appendix G** contains the full LBP inspection report.
- The ORM inspection at the Fintube TBA Site was conducted on April 15, 2009. This inspection consisted of a visual walkthrough evaluating the type and locations of all fluorescent light ballasts and location of any mercury containing thermostats. Fluorescent lights were observed in the Offices and Maintenance Shop at the Evans Building Complex, and within the Locker Room and Break Room at the Fintube Building Complex as previously noted in the Phase I ESA prepared by ALL (ALL 2009). Reportedly, approximately 38 fluorescent light ballasts were replaced at the Fintube Building Complex after 2000. A mercury thermostat switch was observed in both the Locker Room and Break Room at the Fintube Building Complex. Fluorescent lights and

ballasts, and mercury switches are classified as universal wastes for disposal purposes. No other suspected ORM was observed during the inspection. No samples were taken.

- Two unlabeled drums and two bulging drums labeled as containing Xylenes identified in the previous Phase I ESA conducted by ALL were no longer present at the time of the Phase II ESA field activities. Information provided by Doug Wilson, with the City of Tulsa, indicated that the drums had been removed by the owner, Evans Electric, to their new facility. Additionally, subsequent to the prior Phase I ESA conducted by ALL, the City has been renting the Fintube Site to Manhattan Construction and Sherwood Construction (Sherwood) for materials storage and staging for the ongoing highway construction projects. Sherwood had a batch concrete plant with associated aggregate material piles on the eastern portion of the Evans Building Complex portion of the site. Materials were being stored in both building complexes, with light manufacturing also occurring in the Evans Building Complex.

Prior to any future development within the Site, confirmation sampling should be performed to validate the original detected exceedances and to identify the vertical and horizontal extent of contamination within the proposed area(s) of development. This will allow risk-based management for future on-site development.

TABLE OF CONTENTS

Executive Summary	i
Table of Contents.....	vi
List of Tables.....	viii
List of Figures	viii
Appendices.....	viii
Acronyms and Abbreviations.....	ix
1. Introduction	1-1
1.1 Project Objectives	1-1
1.2 Report Organization	1-3
1.3 Site Location.....	1-3
1.4 Site Description and History	1-4
2. Summary of ESA Field Activities	2-1
2.1 Borehole Drilling and Subsurface Soil Sample Collection	2-1
2.2 Surface Soil Sample Collection.....	2-3
2.3 Temporary Monitoring Well Installation	2-3
2.4 Survey of Temporary Monitoring Wells.....	2-4
2.5 Temporary Monitoring Well Sampling.....	2-4
2.6 Temporary Monitoring Well Abandonment.....	2-5
2.7 Investigation-Derived Waste	2-6
2.8 Asbestos Inspection and Sampling.....	2-6
2.9 Lead-Based Paint Inspection and Sampling.....	2-6
2.10 ORM Inspection.....	2-7
2.11 Site Restoration and Demobilization.....	2-7
3. Sampling Procedures and Analytical Methods.....	3-9
3.1 Sampling Procedures	3-9
3.1.1 Surface Soil Sampling Procedures	3-9
3.1.2 Subsurface Soil Sampling Procedures.....	3-11
3.1.3 Groundwater Sampling Procedures.....	3-13
3.2 Analytical Methods.....	3-14

3.3	Field Documentation and Sample Custody	3-14
3.4	Management of Investigation-Derived Waste	3-15
3.5	Data Quality	3-15
3.5.1	Field Quality Control Samples.....	3-16
3.5.2	Laboratory Quality Control Samples	3-16
3.5.3	Data Validation Results.....	3-16
4.	Geology, Hydrogeology, and Soils.....	4-1
4.1	Regional Geology	4-1
4.2	Regional Hydrogeology	4-1
4.3	Site-Specific Soils.....	4-1
4.4	Site-Specific Groundwater	4-2
5.	Results and Findings.....	5-1
5.1	Soil Analytical Results	5-1
5.1.1	Surface Soil Samples	5-1
5.1.2	Subsurface Soil Samples from Borings	5-10
5.2	Groundwater Analytical Results.....	5-13
5.3	Asbestos Analytical Results	5-18
5.4	Lead-Based Paint Inspection	5-20
6.	Summary.....	6-1
6.1	Recommendations.....	6-5
7.	References	7-1

LIST OF TABLES

TABLE 2-1 SOIL BORING LOCATIONS FINTUBE TBA	2-2
TABLE 2-2 SURFACE SOIL SAMPLING LOCATIONS FINTUBE TBA	2-3
TABLE 2-3 – SAMPLE QUANTITY AND ANALYSIS.....	2-5
TABLE 3-1 SAMPLING AND ANALYTICAL REQUIREMENTS FINTUBE TBA	3-10
TABLE 3-2 SAMPLE VOLUME, CONTAINERIZATION, PRESERVATION, AND HOLDING TIMES FINTUBE TBA	3-11
TABLE 3-3 SUBSURFACE SOIL SAMPLE DEPTHS FINTUBE TBA	3-12
TABLE 5-1 SURFACE SOIL ANALYTICAL DETECTIONS ABOVE APPLICABLE REGULATORY LIMITS FINTUBE TBA	5-4
TABLE 5-2 SUBSURFACE SOIL SAMPLES ANALYTICAL DETECTIONS ABOVE APPLICABLE REGULATORY LIMITS FINTUBE TBA	5-12
TABLE 5-3 GROUNDWATER ANALYTICAL DETECTIONS ABOVE APPLICABLE REGULATORY LIMITS FINTUBE TBA	5-16
TABLE 6-1 SURFACE SOIL SAMPLE REGULATORY EXCEEDANCES 81 SOIL SAMPLES	6-2
TABLE 6-2 SUBSURFACE SOIL SAMPLE REGULATORY EXCEEDANCES 10 SOIL SAMPLES.....	6-3
TABLE 6-3 GROUNDWATER SAMPLE REGULATORY EXCEEDANCES 10 GROUNDWATER SAMPLES.....	6-3

LIST OF FIGURES

FIGURE 1-1 AREA MAP	1-5
FIGURE 1-2 SITE LAYOUT MAP.....	1-6
FIGURE 2-1 SOIL SAMPLING LOCATIONS.....	2-8
FIGURE 5-1 PCB ISOPLETH MAP	5-22
FIGURE 5-2 PCB REGULATORY EXCEEDANCE PLUME MAP.....	5-23
FIGURE 5-3 SURFACE SOIL REGULATORY EXCEEDANCES LOCATIONS.....	5-24
FIGURE 5-4 SURFACE SOIL ARSENIC REGULATORY EXCEEDANCE MAP	5-25
FIGURE 5-5 SUBSURFACE SOIL REGULATORY EXCEEDANCES LOCATIONS.....	5-26
FIGURE 5-6 GROUNDWATER REGULATORY EXCEEDANCES LOCATIONS	5-27

APPENDICES

Appendix A	Boring Logs
Appendix B	Sampling Location Survey Data
Appendix C	Analytical Detection List
Appendix D	Laboratory Analytical Data Packages and Validation Report (CD)
Appendix E	Site Photographs
Appendix F	Asbestos Report
Appendix G	LBP Inspection Report
Appendix H	IDW Disposal Records

ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Material	PCB	Polychlorinated Biphenyls
ALL	ALL Consulting	PCP	Pentachlorophenol
bgs	Below Ground Surface	pH	Hydrogen Reactivity
cm	Centimeter	PID	Photo-ionization Detector
COC	Chain of Custody	PLM	Polarized Light Microscopy
DoD QSM	Department of Defense Quality System Manual	PP	Priority Pollutant
DOT	Department of Transportation	ppm	Parts per million
DRO	Diesel Range Organics	PVC	Polyvinyl Chloride
EHCI	Environmental Hazard Control, Inc.	QA	Quality Assurance
ESA	Environmental Site Assessment	QC	Quality Control
GPS	Global Positioning System	RACM	Regulated Asbestos Containing Materials
GRO	Gasoline Range Organics	RCI	Reactivity, Corrosivity, and Ignitability
GWI	Groundwater Interface	RCRA	Resource Conservation and Recovery Act
HUD	Department of Housing and Urban Development	RPD	Relative Percent Difference
IDW	Investigation-Derived Wastes	RSL	Regional Screening Levels
kg	Kilograms	SAP	Sampling and Analysis Plan
L	Liter	SB	Soil Boring
LBP	Lead-based paint	SOP	Standard Operating Procedure
LORO	Lube Oil Range Organics	SVOC	Semi-volatile Organic Compound
MCL	Maximum Contaminant Level	TBA	Targeted Brownfields Assessment
MCPP	Meta-chlorophenylpiperazine	TCLP	Toxicity Characteristic Leaching Procedure
MDL	Minimum Detection Limit	TPH	Total Petroleum Hydrocarbons
mg	milligrams	USACE	U.S. Army Corps of Engineers
MS	Matrix Spike	USCS	Unified Soil Classification System
MSD	Matrix Spike Duplicate	USEPA	U.S. Environmental Protection Agency
ND	Non-detect	USGS	United States Geological Survey
NELAP	National Environmental Laboratory Accreditation Program	VOC	Volatile Organic Compound
ODEQ	Oklahoma Department of Environmental Quality	µg	Micrograms
ODOL	Oklahoma Department of Labor	°C	Degree Centigrade
ORM	Other Regulated Material		
OSHA	Occupational Safety and Health Administration		
OSWER	Office of Solid Waste and Emergency Response		

1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE)-Tulsa District contracted ALL Consulting (ALL) under contract No. W912BV-08-D-2008, Task Order No. 0021, to perform a Phase II Environmental Site Assessment (ESA) of the Fintube Targeted Brownfields Assessment (TBA) Site located in Tulsa, Tulsa County, Oklahoma. This ESA is funded by the U.S. Environmental Protection Agency's (USEPA) TBA Program. The USEPA Region 6 Brownfields Team tasked USACE-Tulsa District to execute the ESA.

This ESA was performed in accordance with the following planning documents:

- *Scope of Work for the Fintube TBA Site, Tulsa, Oklahoma.* Contract Number W912BV-08-D-2008, Task Order No. 0021, US Army Corp of Engineers, Tulsa District, February 2, 2010.
- U.S. Environmental Protection Agency (USEPA), *Quality Assurance Guidance for Conducting Brownfields Site Assessments*, USEPA 540-R-98-038, September 1998.
- ASTM E-1903-97, *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, 2002.
- *Phase II Work Plan for the Fintube TBA Site, Tulsa, Oklahoma.* Includes, *Standard Operating Procedures (SOP)*, *Sampling and Analysis Plan (SAP)*, and the *Accident Prevention Plan (APP)/Site Safety and Health Plan (SSHP)*. Contract Number W912BV-08-D-2008, Task Order No. 0021, US Army Corp of Engineers, Tulsa District, April 09, 2010.

1.1 Project Objectives

The purpose of the Phase II ESA is to evaluate the property and to sample the potential sources of contamination identified in the previous Phase I ESA performed by ALL dated September 28, 2009 (ALL 2009). The prior Phase I ESA identified the following possible environmental concerns: oil stained wooden bricks; railroad operations within the Site; open trenches, pits, sumps, and floor drains; two (2) unlabeled 55-gallon drums; piles of fill material; furnace refractory material; a lead-acid battery within a drainage ditch; leaking transformer and electric

motors; oily floor staining; natural gas engine oil leak; hazardous materials in a dumpster; former presence of Bethlehem Steel Works, Bankoff Scrap Metals, Big Four Foundry, and Storey Wrecker Storage Lot; lack of closure for 1994 sampling event; former presence of fuel storage tanks; former polychlorinated biphenyls (PCB) spill (Traband PCB Site); and suspect Lead-Based Paint (LBP) and Asbestos Containing Material (ACM) within the Site. The end data users for this project are the Tulsa Industrial Authority and the Tulsa Development Authority. Various field tasks such as surface and subsurface soil sampling, drilling soil borings, installing temporary monitoring wells, groundwater grab sampling, abandoning temporary monitoring wells, an LBP inspection, an ACM inspection, and an Other Regulated Materials (ORM) inspection were performed as part of this Phase II ESA. The field work for this ESA was scheduled to be completed April 12-16, 2010; however, two extra days of field work were required on April 29 and 30, 2010, to re-drill SB03 in order to re-collect the groundwater sample that was lost in the shipping process. The work elements of the field investigation for the Site consisted of the following:

- April 12 – April 16, 2010
 - Soil boring and surface soil sample location survey.
 - Collection of ninety-seven (97) surface soil samples from eighty-one (81) locations throughout the Site.
 - Drilling of ten (10) soil borings using a hollow-stem auger drilling rig; installing temporary monitoring wells using 2" diameter, Schedule 40 Polyvinyl Chloride (PVC) casing; well abandonment; temporary storage of Investigation-Derived Waste (IDW); and site restoration.
 - Collection of thirteen (13) subsurface soil samples from the ten (10) soil borings.
 - Collection of thirteen (13) groundwater grab samples from the ten (10) soil borings using 1.5" diameter disposable bailers.
 - Asbestos, lead-based paint (LBP), and other regulated materials (ORM) inspections and sampling. Twenty (20) suspect LBP samples and thirty (30) suspect asbestos containing material (ACM) samples were collected.
- April 29 and 30, 2010

- Drilling of one (1) soil boring (SB03) using a hollow-stem auger drilling rig; installing a temporary monitoring well using 2" diameter, Schedule 40 PVC casing; well abandonment; temporary storage of IDW; and site restoration.
- Collection of one (1) groundwater grab sample from SB03 using 1.5" diameter disposable bailers.
- Collection of two (2) IDW composite soil samples for disposal characterization purposes.

1.2 Report Organization

This report consists of six sections and eight appendices. **Section 1.0** contains an introduction to the report. **Section 2.0** describes the work activities performed at the Site. The sampling and analytical methods and procedures are presented in **Section 3.0**. **Section 4.0** describes the regional and local geologic and hydrogeologic settings. **Section 5.0** presents the soil and groundwater sampling results, results of the ACM inspection, results of the LBP inspection and results of the ORM inspection. **Section 6** is a summary of the investigations. References used in the preparation of this report are included in **Section 7.0**. The figures referenced in this report are included at the end of each respective section.

1.3 Site Location

The subject property, henceforth referred to as the "Site," is located northeast of downtown Tulsa, Tulsa County, Oklahoma, within an area consisting of industrial, commercial, and residential properties. The Site is bounded on the west by a railroad easement; on the east by N. Lansing Ave. and Highway 75; on the north by Lee Supply Co.; and on the south by E. Archer St. and Highway 244. **Figure 1-1** provides a topographic map of the site and surrounding area.

Access is available to the Site via N. Lansing Ave. to the east. The Evans Building Complex consists of three north-south oriented buildings to the north and two east-west oriented buildings to the south. The Fintube Building Complex, consists of four buildings oriented north-south and one smaller building to the southeast that is oriented east-west. An empty, 20'x20', open faced, metal shed is located in the far northwest corner of the Site.

The latitude and longitude coordinates for the Site are 36.1629; (36° 9' 46.4"N) and -95.9813; (95° 58' 52.7" W) (NAD83/WGS84).

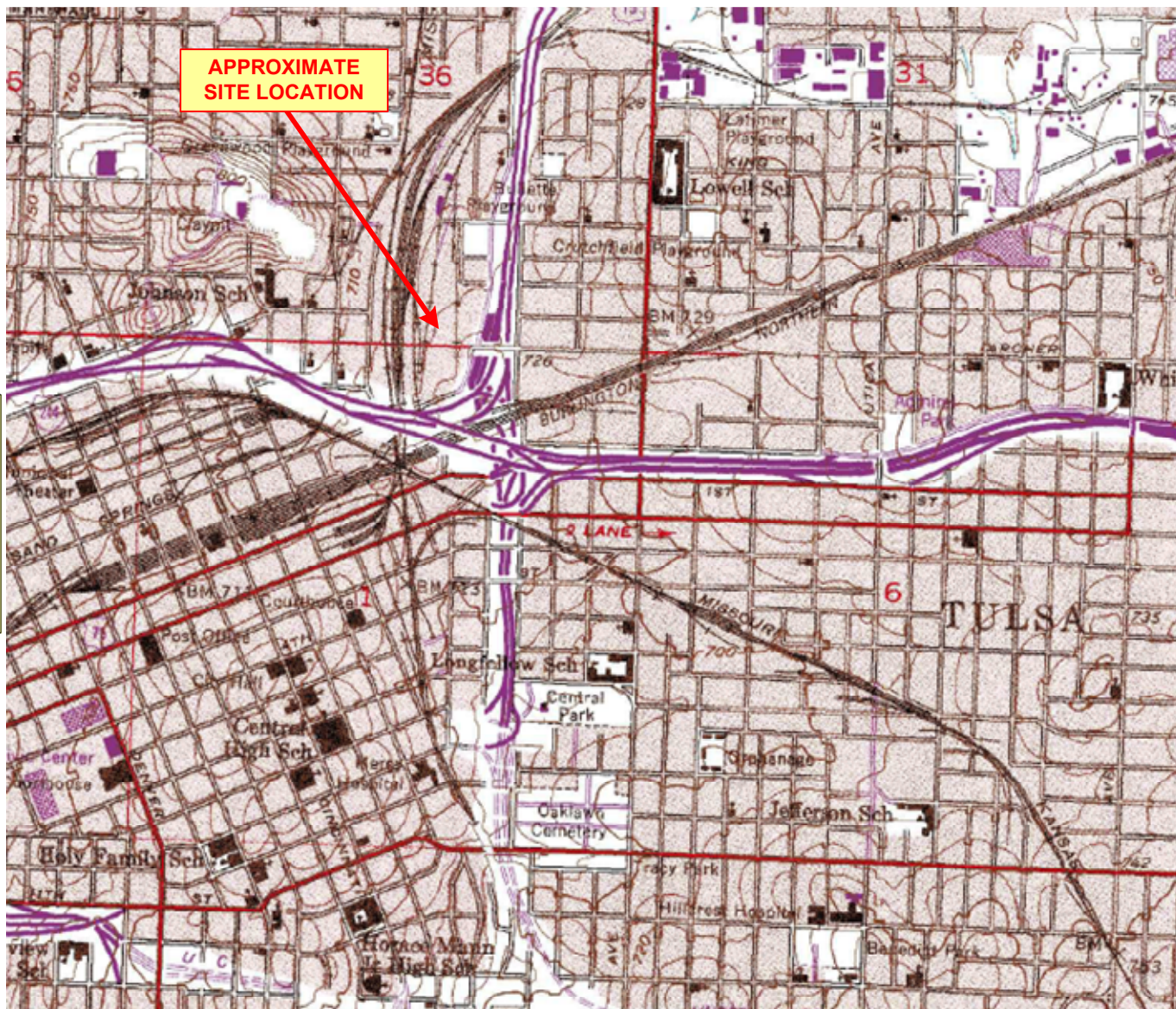
1.4 Site Description and History

The Fintube TBA Site consists of two building complexes and two vacant lots. The southern complex, identified as the Evans Building Complex, consists of three (3) north-south oriented buildings to the north connected to two (2) east-west oriented buildings to the south. The northern complex, identified as the Fintube Building Complex, consists of four (4) north-south oriented buildings connected to one (1) smaller building to the southeast that is oriented east-west. **Figure 1-2** provides a layout map of the Site.

Two unlabeled drums and two bulging drums labeled as containing Xylenes identified in the previous Phase I ESA conducted by ALL (ALL 2009) were no longer present. Information provided by Doug Wilson, with the City of Tulsa, indicated that the drums had been removed by the owner, Evans Electric, to their new facility. Additionally, subsequent to the prior Phase I ESA conducted by ALL, the City has been renting the Fintube Site to Manhattan Construction and Sherwood Construction (Sherwood) for materials storage and staging for the ongoing highway construction projects. Sherwood had a batch concrete plant with associated aggregate material piles on the eastern portion of the Evans Building Complex portion of the site. Materials were being stored in both building complexes, with light manufacturing also occurring in the Evans Building Complex.

According to the historical Sanborn Maps for the Site reviewed during the prior Phase I ESA conducted by ALL, the Evans Building Complex was formerly a steel manufacturing facility that contained a foundry on the northern end. The vacant lot located east of the Evans Building Complex was formerly used as a paper recycling facility. The Fintube Building Complex was formerly used as a metal manufacturing facility and a producer of heat exchangers that consisted of a concrete reservoir, a forge, and welding and fabrication shops. The vacant lot east of the Fintube Building Complex was formerly a residential area.

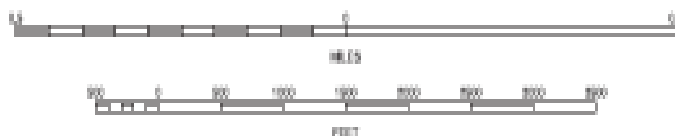
TOWNSHIP 20 NORTH



APPROXIMATE
SITE LOCATION

RANGE 12 EAST

TARGET QUAD
NAME: Tulsa, OK
MAP YEAR: 1979
SERIES: 7.5
SCALE: 1:24,000



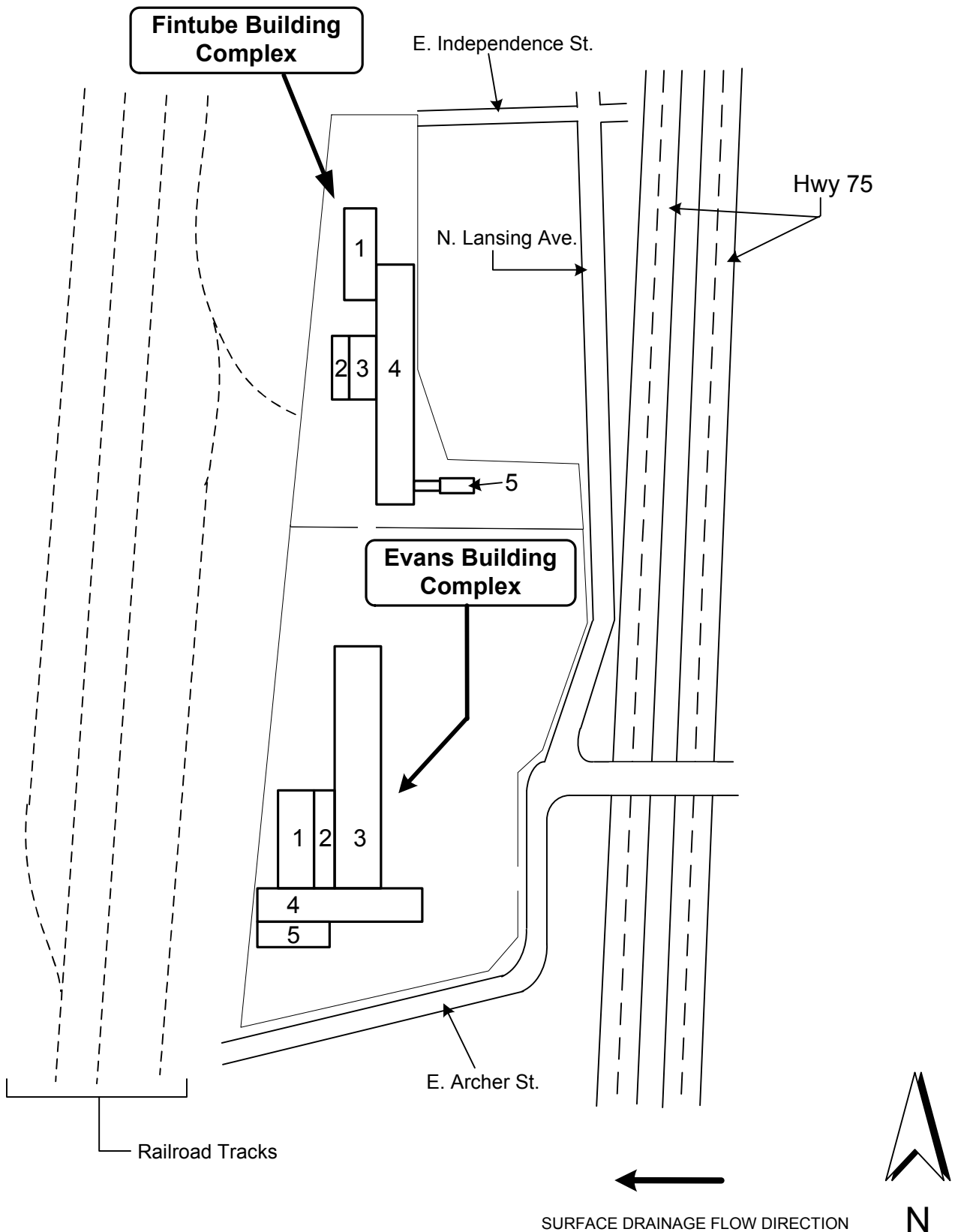
SITE NAME: FINTUBE TBA
ADDRESS: 186 N. LANSING ST.
TULSA, OK 74120
LAT/LONG: 36.1697/-95.9844



TOPOGRAPHIC MAP

FINTUBE TBA
TULSA, OKLAHOMA

SCALE: 1:24000	DATE: 05/20/2010	FIGURE NO. Figure 1-1
APPROVED BY: CBM	DRAWN BY: NDA	PROJECT NO. 1303.RPT.00



SITE LAYOUT MAP

FINTUBE TBA
TULSA, OKLAHOMA

SCALE:

AS SHOWN

DATE:

05/20/2010

FIGURE NO.

Figure 1-2

APPROVED BY:

CBM

DRAWN BY:

NDA

PROJECT NO.

1303.RPT.00

2. SUMMARY OF ESA FIELD ACTIVITIES

This ESA included drilling ten (10) soil borings, sampling surface and subsurface soils, sampling groundwater from the temporary wells, well abandonment, temporary storage and disposal of investigative-derived waste, inspection of suspect LBP, and inspection and sampling of suspect ACM and ORM. A total of ninety-seven (97) surface soil samples, thirteen (13) subsurface soil samples, thirteen (13) groundwater samples, Twenty (20) suspect LBP samples, and thirty (30) suspect ACM samples were collected. All activities were completed in accordance with the Phase II ESA Work Plan (ALL 2010) except for notations mentioned below in each subsection.

2.1 Borehole Drilling and Subsurface Soil Sample Collection

Oklahoma One Call was utilized to ensure that underground utilities within the area (e.g. electric, gas, telephone, cable television, municipal water supply, sanitary sewer or stormwater drain) would not be compromised by the subsurface drilling. Locations for the surface soil samples and soil borings were selected based on the previous Phase I ESA performed by ALL (ALL 2009), discussions with USACE-Tulsa District, historical use of the Site, and current conditions of the Site. **Table 2-1** provides a summary of the locations and investigatory purposes for each of the soil borings. All soil borings were drilled to groundwater depth or to a target depth of approximately 25 feet below ground surface (bgs). The locations of the soil borings are shown in **Figure 2-1**.

Under the supervision of ALL, Mohawk Drilling, Inc. (Mohawk) of Tulsa, Oklahoma, advanced five (5) soil borings on April 13, 2010, and five (5) soil borings on April 14, 2010. A temporary monitoring well was installed in each of the borings. During the re-drilling of SB03, Jett Drilling of Tulsa, Oklahoma, advanced one (1) soil boring and installed a temporary monitoring well.

Table 2-1
Soil Boring Locations
Fintube TBA

Soil Boring Number	Description of Area
SB01	NW Corner of Fintube Complex near old storage pit.
SB02	NE Corner of Site near intersection of Independence Street and Lansing Avenue.
SB03	East-Central side of Fintube Complex.
SB04	South-Central side of Fintube Complex near former 15,000 gallon fuel storage tank.
SB05	Central NW Corner of Evans Complex.
SB06	Central NE Corner of Evans Complex.
SB07	Central East Side of Evans Complex near former fuel oil storage tank (north tank).
SB08	Central East Side of Evans Complex near former fuel oil storage tank (south tank).
SB09	Southwest Side of Evans Complex near Building 5.
SB10	Southeast Side of Evans Complex near Archer Street.

Decontaminated 6" hollow-stem augers were advanced to the target depth of 25 feet or the groundwater interface in each of the soil borings. Initial groundwater depth was determined based on the moisture content of the drill cuttings brought up by the augers (split spoon sample analysis) and the amount of force needed to drill through the soil.

A subsurface soil sample was collected from each of the ten (10) soil borings with a decontaminated split spoon from one of the following depths (listed in order of priority):

1. High Photo-ionization Detector (PID) reading;
2. Visible Staining;
3. Groundwater Interface; and,
4. Total Depth of the Borehole.

A total of thirteen (13) subsurface soil samples were collected from the soil borings. Of the subsurface soil samples collected, ten (10) were normal samples, one (1) sample was a duplicate, one (1) sample was a Matrix Spike (MS), and one (1) sample was a Matrix Spike Duplicate (MSD). The subsurface soil samples were submitted to Accutest Laboratories of Orlando, Florida, a National Environmental Laboratory Accreditation Program (NELAP) certified laboratory, for analysis of Volatile Organic Compounds (VOCs); Semi-volatile Organic Compounds (SVOCs); Total Petroleum Hydrocarbons (TPH) as Gasoline Range Organics (>C6

to C12), Diesel Range Organics (>C12 to C28), and Lube Oil Range Organics (>C28 to C35); herbicides; PCBs; and Priority Pollutant (PP) Metals.

2.2 Surface Soil Sample Collection

A total of ninety-seven (97) surface soil samples were collected from April 13 to April 15, 2010. Of the ninety-seven surface soil samples, 13 were collected from the ten (10) soil boring locations and the remaining eighty-four surface soil samples were collected in a 150-foot grid pattern throughout the Site. Of the surface soil samples collected at soil boring locations, ten (10) were normal samples, one (1) sample was a duplicate, one (1) sample was an MS, and one (1) sample was an MSD. Of the grid surface soil samples, seventy-one (71) were normal samples, seven (7) samples were duplicates, three (3) samples were an MS, and three (3) samples were an MSD. Each of the thirteen (13) surface soil samples collected at soil boring locations, and 27 (approximately 30%) of the grid surface soil samples were submitted to Accutest Laboratories of Orlando, Florida, for analysis of VOCs, SVOCs, TPH, PCBs, herbicides, and PP Metals. The remaining fifty-seven (57) surface soil samples were submitted to Accutest Laboratories of Orlando, Florida, for analysis of TPH, PCBs, and PP Metals only.

Table 2-2 provides a summary of the locations and investigatory purposes for each surface soil sample and **Figure 2-1** depicts the locations of the surface soil samples.

Table 2-2
Surface Soil Sampling Locations
Fintube TBA

# of Surface Samples	Soil Sample Location
70 (+1)	Locations throughout site based upon a grid pattern as seen in Figure 2-1 . 30% of the samples will be tested for the full suite of analyses and 70% will be analyzed for PP Metals, PCBs, and TPH (DRO/GRO). (One additional sample was collected off grid)
10	Locations determined by soil boring locations.
81	TOTAL (Excludes Duplicates and MS/MSD Samples)

2.3 Temporary Monitoring Well Installation

Installation of temporary monitoring wells within the soil borings was completed for the collection of groundwater grab samples. The temporary monitoring wells were constructed of 2", Schedule 40 PVC casing, ten (10) feet of slot size #10 screen, and a sand/gravel filter pack.

Surface elevations were not determined for the temporary monitoring wells because this investigation was designed to test only the constituents of the groundwater. **Table 2-3** presents borehole drill depth and depth to groundwater for the temporary monitoring wells installed at the Site.

Table 2-3
Temporary Well Details
Fintube TBA

Temporary Well ID	Total Depth	Depth to Water
SB01	9.5'	4.1'
SB02	25.0'	13.4'
SB03	20.3'	10.0'
SB03A*	25.0'	8.2'
SB04	20.2'	4.6'
SB05	15.3'	7.3'
SB06	20.3'	5.3'
SB07	15.0'	7.5'
SB08	20.0'	8.2'
SB09	15.0'	7.3'
SB10	18.0'	14.4'

* SB03 was re-drilled and designated SB03A due to sample lost in shipping.

2.4 Survey of Temporary Monitoring Wells

ALL surveyed each of the soil borings and surface soil locations at the Site. Global positioning system (GPS) points were taken at each of the ten (10) borehole and the seventy (70) surface sampling locations, with the survey data presented in **Appendix B**.

2.5 Temporary Monitoring Well Sampling

Groundwater grab samples were collected from each of the temporary monitoring wells using 1.5" diameter dedicated, disposable hand bailers. All temporary wells contained enough groundwater volume to allow for proper sample collection for all analyses. Development of wells did not take place prior to samples being taken from the temporary wells. Groundwater grab samples from all temporary monitoring wells were submitted to Accutest Laboratories for selective analysis of VOCs, SVOCs, Diesel Range Organics/Gasoline Range Organics

(DRO/GRO), herbicides, PCBs, and PP Metals. **Table 2-4** shows the specific analyses performed for each area.

Table 2-4 – Sample Quantity and Analysis

Matrix	No. Field Samples	No. Discretionary Samples	No. Duplicate Samples	No. Field Blanks	Trip Blank **	Equipment Rinsate Blank	MS/MSD Samples	Total	Analysis/Method
Surface Soil	81	-	8	-	-	-	4	93	Metals 6020/7471
	31	-	3	-	-	-	1	35	VOCs 5035/8260
	31	-	3	-	-	-	1	35	SVOCs 8270
	81	-	8	-	-	-	4	93	PCBs 8082
	81	-	8	-	-	-	4	93	TPH TX 1005
	31	-	3	-	-	-	1	35	Herbicides 8151A
Subsurface Soil	10	-	1	-	-	-	1	12	Metals 6020/7471
	10	-	1	-	-	-	1	12	VOCs 5035/8260
	10	-	1	-	-	-	1	12	SVOCs 8270
	10	-	1	-	-	-	1	12	PCBs 8082
	10	-	1	-	-	-	1	12	TPH TX 1005
	10	-	1	-	-	-	1	12	Herbicides 8151A
Groundwater	10	-	1	-	-	-	1	12	Metals 6020/7470
	10	-	1	-	2	-	1	14	VOCs 5030/8260
	10	-	1	-	-	-	1	12	SVOCs 8270
	10	-	1	-	-	-	1	12	PCBs 8082
	10	-	1	-	-	-	1	12	DRO/GRO 8015M/8100M
	10	-	1	-	-	-	1	12	Herbicides 8151A
Investigative Derived Waste	2	-	-	-	-	-	-	2	TCLP Metals 6010B
	2	-	-	-	-	-	-	2	TCLP VOCs 8260B
	2	-	-	-	-	-	-	2	TCLP SVOCs 8270C
	2	-	-	-	-	-	-	2	Reactivity, Corrosion, Ignitability

** Trip blank for water VOC samples, one for every sample delivery group containing VOC samples, or one per day.

- One QC Duplicate sample should be collected every 10 samples, per media.

- One MS/MSD sample should be collected for every 20 samples, per media.

- MS/MSD sample is 2 times the sample volume required for normal analyses.

2.6 Temporary Monitoring Well Abandonment

Following groundwater sampling activities, the temporary monitoring wells were abandoned in accordance with State of Oklahoma regulations prior to demobilization from the Site. Abandonment was accomplished by removing the 2-inch PVC well casing and screen and backfilling the entire boring from total depth to surface with bentonite.

2.7 Investigation-Derived Waste

Investigation-derived wastes (IDW), including soil cuttings generated during borehole drilling, were collected and placed into Department of Transportation (DOT) approved, open-top 55-gallon waste drums. The drums were sealed, labeled, and staged within the Site prior to removal and disposal. Waste characterization samples of the IDW were collected and analyzed for Toxicity Characteristic Leaching Procedure (TCLP); VOCs; SVOCs; eight (8) Resource Conservation and Recovery Act (RCRA) metals; and Reactivity, Corrosivity, and Ignitability (RCI) by Accutest Laboratories.

See **Section 3.4** for more details on IDW.

2.8 Asbestos Inspection and Sampling

An asbestos inspection was conducted on April 16, 2010, at the Fintube TBA Site by a USEPA accredited and Oklahoma Department of Labor (ODOL)-licensed asbestos inspector /management planner with Environmental Hazard Control, Inc (EHCI). During the inspection, there were sixteen (16) homogeneous areas identified for sample collection and analysis from the Fintube Building Complex and seven (7) homogeneous areas from the Evans Building Complex. After collection of the Suspect ACM, the samples were sent to Quantem Laboratories in Oklahoma City, Oklahoma, for analysis using polarized light microscopy. A total of twenty-one (21) samples were analyzed from the sixteen (16) homogeneous areas within Fintube Building Complex and nine (9) samples were analyzed from the seven (7) homogeneous areas within Evans Building Complex. Types of materials sampled included:

- Thermal system pipe fittings in locker room area of Fintube main building
- Flooring debris from locker room of Fintube main building
- Thermal system pipe insulation from main warehouse in Evans Building Complex

Appendix F contains the full asbestos inspection report.

2.9 Lead-Based Paint Inspection and Sampling

A LBP inspection was conducted on April 16, 2010, at the Fintube TBA Site by an accredited and licensed LBP Inspector/Risk Assessor (License # OKRASR11105) with EHCI. A total of 73

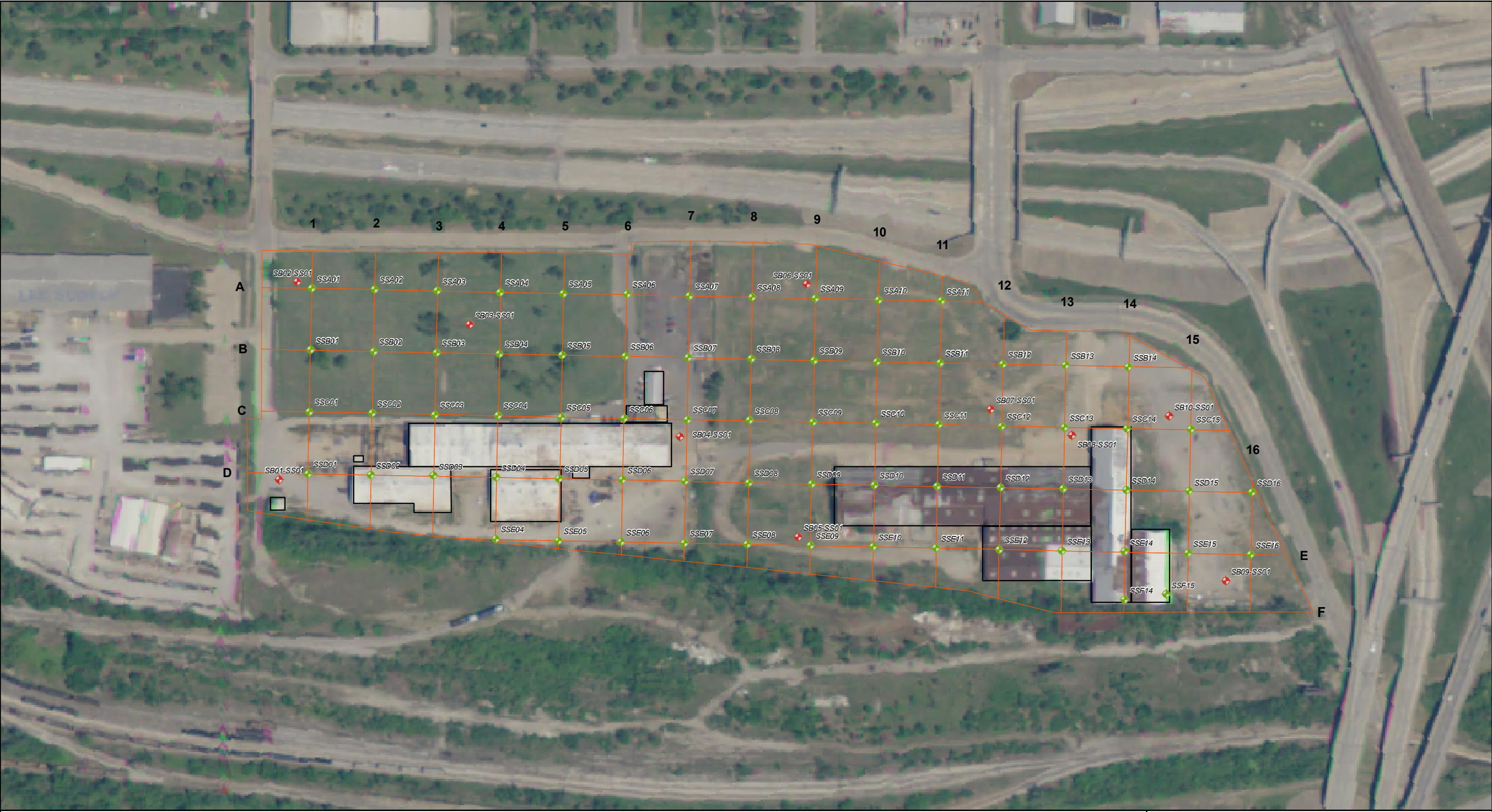
samples from the Fintube Building Complex and 71 samples from the Evans Building complex were screened using a Scitec XRF-MAP 4 Spectrum Analyzer in the unlimited mode. Based on the screenings, ten (10) paint chip samples were collected from each of the building complexes (20 total samples) and submitted to Quantem Laboratories for lead analysis using USEPA Method 7420, Atomic Absorption. **Appendix G** contains the full LBP inspection report.

2.10 ORM Inspection

The ORM inspection at the Fintube TBA Site was conducted on April 15, 2010. This inspection consisted of a visual walkthrough evaluating the type and locations of all fluorescent light ballasts and location of any mercury containing thermostats. Fluorescent lights were observed in the Offices and Maintenance Shop at the Evans Building Complex and within the Locker Room and Break Room at the Fintube Building Complex as previously noted in the Phase I ESA prepared by ALL (ALL 2009). Reportedly, approximately 38 fluorescent light ballasts were replaced at the Fintube Building Complex after 2000. A mercury thermostat switch was observed in both the Locker Room and Break Room at the Fintube Building Complex. Fluorescent lights and ballasts, and mercury switches are classified as universal wastes for disposal purposes. No other suspected ORM was observed during the inspection. No samples were taken.

2.11 Site Restoration and Demobilization

Following completion of the ESA site activities on the weeks of April 12 and April 26, 2010, the drilling equipment was decontaminated and demobilized. Disturbed areas were returned to their previous site conditions by Mohawk Drilling and ALL Consulting.



Soil Boring Locations

Grid Surface Soil Sample Locations

Sample Grid

Building Footprint

0

125

250

500

Feet

Sample Location Map

Former Fintube TBA Site

SCALE: 1:2000	DATE: May 2010	FIGURE NO. Figure 2-1
APPROVED BY: CBM	DRAWN BY: JPV	PROJECT NO. 1303.RPT.00

Imagery Source: maps.scgis.com OK_Aerials_2008 service

3. SAMPLING PROCEDURES AND ANALYTICAL METHODS

The following sections discuss the procedures used for collecting soil and groundwater samples, including field documentation, quality assurance (QA)/quality control (QC), and methods used for laboratory analysis. These procedures are consistent with the Phase II ESA Work Plan (ALL, 2010). Analytical results are discussed in **Section 5.0**.

3.1 Sampling Procedures

Soil and groundwater sampling procedures are presented in the following sections.

3.1.1 Surface Soil Sampling Procedures

As discussed in **Section 2.2**, surface soil samples were taken from strategic locations based upon historical information and field observations. Surface soil sample collection procedures were as follows:

- Surface debris (e.g., leaves, twigs) was removed from sampling location using a stainless steel trowel.
- Grab samples were collected for laboratory analysis by filling the appropriate number and type of sample containers described in **Table 3-1** and **Table 3-2**.
- Sample labels were filled out with sample identification numbers in accordance with sample identification protocol outlined in the Standard Operating Procedures (SOP) of the Phase II ESA Work Plan (ALL 2010), including sample identification, collection date and time, and requested analysis.
- The sample bottles were wrapped in plastic bubble-wrap bags, and placed on ice in a cooler to achieve a temperature of below 4 °C before shipment to the laboratory.
- At the completion of the each day, a Chain of Custody (COC) was filled out for each packed cooler to identify samples and the requested analysis.
- Prior to shipment to Accutest Laboratories, the coolers were sealed with custody seals, taped for shipping, and shipped via Federal Express.

Table 3-1
Sampling and Analytical Requirements
Fintube TBA

Site	Matrix	Number of Normal Samples	Quality Control Samples	Parameter	Method	Turn-around-Time (TAT)
Fintube TBA	Surface Soil	81	See Note	PP Metals VOC SVOC PCB Herbicides TPH	SW-846 6020/7471 SW-846 8260 SW-846 8270 SW-846 8082 SW-846 8151 TX 1005	6 Months 48 Hours* 14 Days 14 Days 14 Days 14 Days
	Subsurface Soil	10	See Note	PP Metals VOC SVOC PCB Herbicides TPH	SW-846 6020/7471 SW-846 8260 SW-846 8270 SW-846 8082 SW-846 8151 TX 1005	6 Months 48 Hours* 14 Days 14 Days 14 Days 14 Days
	Groundwater	10	See Note	PP Metals VOC SVOC PCB Herbicides DRO GRO	SW-846 6020/7471 SW-846 8260 SW-846 8270 SW-846 8082 SW-846 8151 8015C 8015C	6 Months 14 Days 7 Days 7 Days 14 Days 7 Days 14 Days

Note: Field duplicate samples were collected at a frequency of 10 percent, MS/MSDs at a frequency of 5 percent

** sample must be frozen or extracted within 48 hours, if frozen sample may be held for 14 days.*

Table 3-2
Sample Volume, Containerization, Preservation, and Holding Times
Fintube TBA

Matrix	Analysis Method	Containers for one sample (number, size, type)	Preservation	Maximum Holding Times
Soil	PP Metals 6020/7471	8 oz glass jar	Ice to 4°C	6 months
	VOCs 5035/8260	3 X 40 ml VOA vial	De-ionized water (2 vials), Methanol (1 vial), Ice to 40C	48 hours*
	SVOCs 8270	8 oz glass jar	Ice to 40C	14 days
	PCBs 8082	8 oz glass jar	Ice to 40C	14 days
	Herbicides	8 oz glass jar	Ice to 40C	14 days
	TX 1005	4 oz glass jar	Ice to 40C	14 days
Groundwater	PP Metals 6020/7470	500 ml plastic	HNO ₃ , Ice to 4°C	6 months
	VOCs 5030/8260	3 X 40 ml VOA vial	HCl, Ice to 40C	14 days
	SVOCs 8270	2 X 1L amber glass	Ice to 40C	7 days
	PCBs 8082	2 X 1L amber glass	Ice to 40C	7 days
	Herbicides	8 oz glass jar	Ice to 40C	14 days
	DRO 8015C	2 X 1L amber glass	H ₂ SO ₄ Ice to 40C	7 days
	GRO 8100C	3 X 40 ml VOA vial	HCl, Ice to 4°C	14 days

* Sample must be frozen or extracted within 48 hours; frozen sample may be held for 14 days.

3.1.2 Subsurface Soil Sampling Procedures

As discussed in **Section 2.1**, one (1) normal subsurface soil sample was collected from each of the ten (10) soil borings at one of the depth intervals listed in **Table 3-3**.

Subsurface soil sample collection procedures were as follows:

- Prior to sampling, the augers, drill bits, and the split-spoon samplers were decontaminated in accordance with the procedure outlined in the SOP. (See Phase II ESA Work Plan; ALL, 2010).
- The split-spoon sampler was retrieved from the borehole and opened so that the contents could be viewed.
- The entire length of the core was measured and a visual log of the lithology was prepared, using the Unified Soil Classification System (USCS); both were recorded on a drilling log form (see **Appendix A**).

Table 3-3
Subsurface Soil Sample Depths
Fintube TBA

Boring Number	Subsurface Sample (feet)	Rationale
SB1	7'-9'	GWl – Black Stain
SB2	22'-23'	Total Depth
SB3	18'-20'	Total Depth
SB4	14'-15'	GWl
SB5	12'-14'	GWl
SB6	12'-15'	GWl
SB7	13'-15'	Total Depth
SB8	14'-15'	High PID
SB9	11'-13'	GWl
SB10	15'-18'	Total Depth

Subsurface soil sample collection depths (**Table 3-3**) were chosen based on the following criteria (listed in order of priority):

1. High PID reading,
 2. Visible Staining,
 3. Groundwater Interface (GWl), and
 4. Total Depth of the Borehole.
- Soil samples were collected for laboratory analysis by filling the appropriate number and type of sample containers described in **Table 3-1** and **Table 3-2**. Subsurface soil samples were sent to Accutest Laboratories in Orlando, Florida.
 - Sample labels were filled out with sample identification numbers in accordance with sample identification protocol outlined in the SOP of the Phase II ESA Work Plan (ALL, 2010), including collection date and time, and requested analysis.
 - The appropriate sample label was affixed to each sample container, which was enclosed in a plastic bubble wrap bag and placed on ice in a cooler to achieve a temperature of below four degrees centigrade (4°C) before shipment to the laboratory.

- At the completion of the each day, a COC was filled out for each packed cooler to identify the samples and the requested analysis.
- Prior to shipment to Accutest Laboratories, the coolers were sealed with custody seals, taped for shipping, and then shipped via Federal Express.

3.1.3 Groundwater Sampling Procedures

Groundwater samples were collected from each of the temporary monitoring wells using dedicated, disposable bailers. Groundwater sample collection procedures were as follows:

- Dedicated, disposable bailers were used to obtain groundwater samples; therefore, bailer decontamination was not required.
- Bailers were gently lowered into the temporary well to minimize disturbance of the water column as much as possible and retrieved to obtain groundwater samples. This process was repeated as necessary until all necessary sample jars were full.
- Groundwater samples were collected for laboratory analysis by filling the appropriate number and type of sample containers described in **Table 3-1** and **Table 3-2**. Groundwater samples were sent to Accutest Laboratories in Orlando, Florida.
- Sample labels were filled out with sample identification numbers in accordance with sample identification protocol outlined in the SOP of the Phase II ESA Work Plan (ALL 2010), including collection date and time, and requested analysis.
- The appropriate sample label was affixed to each sample container, which was enclosed in a plastic bubble wrap bag and placed on ice in a cooler to achieve a temperature of below four degrees centigrade (4°C) before shipment to the laboratory.
- At the completion of the each day, a COC was filled out for each packed cooler to identify samples and the requested analysis.

Prior to shipment to Accutest Laboratories, custody seals were affixed to the coolers and sealed with shipping tape. The coolers were then shipped via Federal Express.

Groundwater samples were sent to Accutest Laboratories in Orlando, Florida. Accutest is accredited by NELAP, and is compliant with the most recently published version of the

Department of Defense Quality System Manual (DoD QSM), and is certified for analysis of the parameters listed in **Table 3-1** and **Table 3-2**. Analytical results are discussed in **Section 5.0**.

3.2 Analytical Methods

The following analytical methods (USEPA 1996) were used for soil and groundwater sample analysis:

- PP Metals – SW 846 Method 6020/7471 for soils and Method 6020/7470 for groundwater
- VOCs – SW 846 Method 5035/8260 for soils and Method 5030/8260 for groundwater.
- SVOCs – SW 846 Method 8270 for soils and groundwater.
- PCBs – SW 846 Method 8082 for soils and groundwater.
- GRO/DRO – Method TX 1005 for soils and SW 846 Method 8015C for groundwater.
- pH –field test for groundwater.
- Herbicides – SW 846 Method 8151A for soils and groundwater.
- ACM – USEPA Method 600R-93/116 - Polarized Light Method (PLM)
- LBP - SW-846 Method 7420 - Atomic Absorption.

The analytical methods used for IDW sample analysis are discussed in **Section 3.4**.

Individual analytical constituents for each of the methods and associated detection limits are listed in **Appendix D**.

3.3 Field Documentation and Sample Custody

Individual field crew members were responsible for maintaining daily field notes on drilling and sampling activities, including:

- Name and title of author, date and time of entry, and weather/environmental conditions during the field activity
- Location of sampling activity
- Name and title of field crew
- Name and title of site visitors
- Sample media (i.e. groundwater and soils)
- Sample collection method
- Number and volume of sample(s) taken
- Date and time of collection
- Sample identification number(s)
- Field observations.

In addition to recording sampling information in the field notes, COC forms were completed in the field by the sampling personnel and placed inside the cooler with the respective samples and shipped to the analytical laboratory. Each unique sample number, time of collection, sample matrix, number of sample containers, requested analysis name and method number, laboratory QA/QC level, and TAT was entered on the COC form prior to sealing the cooler.

At the end of each day, samples were securely packed on ice inside coolers with a completed COC form. Custody seals were affixed to the outside of the cooler, which was then taped closed with clear packing tape. The coolers were taken to a Federal Express facility in Tulsa, Oklahoma, for overnight shipment to Accutest Laboratories in Orlando, Florida.

3.4 Management of Investigation-Derived Waste

Investigation-derived wastes were managed in accordance with the SOPs developed for the Fintube TBA (ALL 2010). Characterization of waste streams was accomplished in accordance with the procedures outlined in the Sampling and Analysis Plan (SAP) developed for the Fintube TBA (ALL 2010). Soil cuttings generated during borehole drilling were contained within DOT approved 55-gallon drums, sampled, and staged within the Site for subsequent waste characterization and final disposal.

Composite samples from the soil cuttings were submitted to Accutest Laboratories for analysis for:

- TCLP VOCs (USEPA Method SW-846 8260B),
- TCLP SVOCs (USEPA Method SW-846 8270C),
- TCLP 8 RCRA Metals (USEPA Method 6010B),
- RCI Corrosivity (USEPA Method SW-846 CHAP7 and 1010).

All IDW tested non-hazardous and will be disposed of by A & M Engineering and Environmental Services, Inc. (A & M Engineering). A copy of the disposal records will be included in **Appendix G** with the final report.

3.5 Data Quality

The primary objective of the field investigation was to obtain reproducible, defensible data of sufficient quality and quantity to determine if impacted soil or groundwater is present in the

investigated portions of the Site at concentrations exceeding screening criteria. A particular objective was to determine if site conditions would pose a potential health, environmental, or safety risk for human activity. Data quality objectives, including data quality indicators for precision, accuracy, representativeness, completeness, comparability, and sensitivity were established to achieve this goal. To ensure data quality, samples were documented from collection through reporting.

3.5.1 Field Quality Control Samples

Quality control samples such as field duplicates and trip blanks were collected during the ESA. Samples were used to test for field contamination that might impact the primary analytical results. The QC samples were collected in accordance with procedures outlined in the SAP (ALL 2010).

3.5.2 Laboratory Quality Control Samples

Laboratory QC samples were used to measure the accuracy and precision of the analytical method and to evaluate matrix interference. Laboratory QC samples included method blanks, laboratory control samples, and MS/MSD samples. The Project Chemist performed a QC assessment of each data package and an overall data quality review for the project. The results of the data quality assessments, together with the complete laboratory analytical reports, are provided on compact disk, which is included as **Appendix D**.

3.5.3 Data Validation Results

Data validation was performed on all of the analytical results with a summary given below. In general, the analytical data produced from the collected samples are useful for their intended purpose as stated by the data quality objectives in the Work Plan (ALL 2010).

There were instances of MS/MSD relative percent difference calculations exceeding the prescribed control limits for some constituents and some MS/MSD percent recoveries outside of acceptable limits. Some of these did lead to flagged associated data as “J”, estimated. All field duplicate results were within project-specified limits for the detected analytes. It was also indicated that a few samples were not preserved to a pH <2 with the reported results being considered the minimum values. The detected analytes in the associated field samples were flagged as estimated – “J”. There were several instances of Methylene Chloride, a common lab

contaminant, found in the Method Blanks, with several samples flagged “U”, not detected, or “B”, found in the blank. For some PCBs, there were some values that were estimated due to the presence of multiple overlapping Aroclor patterns. A complete data validation report is presented in **Appendix D**.

4. GEOLOGY, HYDROGEOLOGY, AND SOILS _____

4.1 Regional Geology

The Geologic Map of Oklahoma shows the geologic units underlying subject area to consist of the Upper Pennsylvanian-age Seminole Formation, comprised mainly of shale with interbedded siltstone and sandstone.

Regionally, the Site lies within the Central Lowland which stretches from the northern border of Minnesota to central Texas. The Central Lowlands are characterized by gently rolling plains with occasional steep bluffs and a number of valleys. Elevations range from 300 to 2,000 feet and the area consists of some nearly flat portions and other areas of rounded hills.

4.2 Regional Hydrogeology

The Vamoosa Formation is a member of the Vamoosa-Ada aquifer of east-central Oklahoma, an important source of water underlying parts of Osage, Pawnee, Payne, Creek, Lincoln, Okfuskee, and Seminole Counties. The aquifer consists of very fine-grained sandstone, siltstone, shale, and conglomerate interbedded with very thin limestones.

The nearest surface water feature to the Site is the Arkansas River which is located approximately 1.75 miles southwest of the Site (see **Figure 1-1**).

4.3 Site-Specific Soils

According to the United States Department of Agriculture - Natural Resources Conservation Service Soil Map the soil at the Site consists mostly of Urban Land (NRCS 2000). Urban Land typically has 0 to 8% slopes, a very high runoff rate, and is not typically subject to flooding or ponding. Urban Land's land capability classification is 8s, and is not assigned as an ecological site. The Urban Land at the Site is the result of intermingling native soil with fill material introduced during the prior development of Site and surrounding properties, which makes it impractical to distinguish the native soil types. Often, the development of a site involves the stripping of the top soil horizon and placement of fill material on top.

4.4 Site-Specific Groundwater

Groundwater was encountered in soil borings at depths of approximately 4 to 15 feet bgs. This Phase II sampling project was not intended to establish a groundwater profile of the Site. Instead the wells were allowed to produce enough groundwater in the temporary wells to meet the required volume for testing only. Therefore, groundwater elevation and flow direction was not determined.

5. RESULTS AND FINDINGS

5.1 Soil Analytical Results

This section summarizes the analytical results from surface and subsurface soil samples collected at the Fintube Site. The analytical results from all surface soil samples (less than six [6] inches deep) and all subsurface soil samples were compared to USEPA Regional Screening Levels (RSLs) for industrial soil screening levels (USEPA 2010) or USEPA Regional Maximum Contaminant Level (MCL)-based Soil Screening Levels when the RSLs were not available. The Oklahoma Department of Environmental Quality (ODEQ) risk-based screening levels for GRO (500 milligrams per kilogram (mg/kg), DRO (2500 mg/kg), and Lube Oil Range Organics (5000 mg/kg) were used to screen all collected soil samples (ODEQ 2009). **Appendix C** includes data tables that list every sample for which at least one constituent was detected above the Method Detection Limit (MDL). Complete copies of the analytical results, COC forms, and data validation report are contained on compact disk in **Appendix D**. Results of the screenings for surface soil and subsurface soil are discussed in the following sections.

5.1.1 Surface Soil Samples

A total of ninety-seven (97) surface soil samples were collected from points that were selected for potential contamination based upon historical data and on-site observations. The total number of samples includes eighty-one (81) normal samples, eight (8) QC duplicate samples, three (3) MS samples, and three (3) MSD samples.

The VOCs acetone, benzene, 2-hexanone, 4-methyl-2-pentanone, methyl ethyl ketone, and toluene were detected at concentrations below their RSLs throughout the Site. None of the VOC detections exceeded their RSLs in any of the surface soil samples.

The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected above their RSLs in sixteen (16) surface soil samples. Benzo(a)anthracene was detected at a concentration of 2,130 µg/kg in SSD10 which exceeds its RSL of 2,100 µg/kg. Benzo(a)pyrene concentrations ranged from non-detect (ND) to 4,270 µg/kg and exceeded its RSL of 210 µg/kg in sixteen (16) surface soil samples (SSA01, SSA03,

SSB05, SSB08, SSC01, SSC03, SSC05, SSC12, SSD10, SSE06, SSE11, SSE16, SB01, SB02, SB05, and SB06). Benzo(b)fluoranthene concentrations ranged from ND to 9,480 µg/kg and exceeded its RSL of 2,100 µg/kg in samples SSA03 and SSD10. Dibenzo(a,h)anthracene concentrations ranged from ND to 1,690 µg/kg and exceeded its RSL of 210 µg/kg in samples SSA03, SSB08, SSD10, SSE06, and SB05. Indeno(1,2,3-cd)pyrene was detected at a concentration of 7,570 µg/kg in SSD10 which exceeds its RSL of 2,100 µg/kg. The SVOC exceedances in surface soils at the Site are scattered throughout the Site, with more exceedances occurring in the northern portion. It is likely that a greater number of SVOC exceedances would have been detected in the surface soil samples, however only thirty percent of the grid samples were analyzed for SVOCs.

Pentachlorophenol (PCP), identified in both the SVOC and herbicides lists, was detected in surface soil sample SSF14 at a concentration of 14.1 µg/kg. This detection does not exceed the RSL for PCP of 9,000 µg/kg. Another component of herbicides, Meta-chlorophenylpiperazine (MCP) was detected in surface soil sample SSC15 at a concentration of 33,000 µg/kg. This MCP detection does not exceed the RSL of 620,000 µg/kg. No other herbicide components were detected in any other surface soil samples.

GROs were detected at a concentration of 44.6 mg/kg in sample SSD11. This detection did not exceed the ODEQ risk-based action limit of 500 mg/kg. GROs were not detected in any other surface soil samples. Analysis of thirty-five (35) surface soil samples detected the presence of DROs above the method detection limit. The ODEQ risk-based action limit of 2,500 mg/kg was exceeded in the following eleven (11) samples: SSC14, SSD04, SSD05, SSD10, SSD11, SSD12, SSD13, SSD14, SSE12, SSE14, and SSF14. Sample SSD05 displayed the highest DRO concentration at 44,200 mg/kg. Two (2) of the DRO exceedances occurred in the western portion of the Fintube Building Complex, and the remaining nine (9) exceedances occurred throughout the Evan's Building Complex. Thirty-five (35) surface soil samples were analyzed and detected the presence of Lube Oil Range Organics (LOROs) above the method detection limit. The ODEQ risk-based action limit of 5,000 mg/kg was exceeded in the following four samples: SSD04, SSD11, SSD12, and SSD13. Sample SSD04 displayed the highest LORO concentration at 39,500 mg/kg. The LORO exceedance at SB04 occurred within the western portion of the Fintube Building Complex and the remaining three exceedances occurred within the eastern portion of the Evan's Building Complex.

PP Metals were screened and detected in each of the surface soil samples, although arsenic and lead were the only metals detected above their RSLs. Arsenic ranged from ND to 70 mg/kg and exceeded its RSL of 1.6 mg/kg in all but three samples. The United States Geological Survey (USGS) has reported that naturally occurring Arsenic levels in Oklahoma soils typically range from 0 to 32 mg/kg. Lead concentrations ranged from ND to 4,310 mg/kg and were detected above its RSL of 800 mg/kg in samples SSC14, SSD10, SSD11, SSD14, and SSD15.

PCB concentrations were detected above their RSL of 740 µg/kg in eight (8) surface soil samples. The single detection of PCB 1248 occurred in sample SSC12 at a concentration of 1,160 µg/kg, which exceeds the RSL. PCB 1254 concentrations ranged from ND to 18,000 µg/kg and exceeded the RSL in one (1) surface soil sample (SSD12). PCB 1260 concentrations ranged from ND to 16,400 µg/kg and exceeded the RSL in twelve (12) surface soil samples (SSD04, SSD05, SSD07, SSD10, SSD11, SSD12, SSD14, SSE12, SSE13, SSF14, and SB04). As shown in **Figure 5-1**, two PCB-1260 hotspots are located within the Site, which indicate two potential sources of the PCB plume. The first hotspot, with a detection of 16,400 µg/kg is located at SSD05 on the exterior of the southwest portion of the Fintube Building Complex. The second hotspot, with a detection of 6,250 µg/kg, occurs within the east-central portion of the Evans Building Complex. **Figure 5-2** depicts a PCB plume map which indicates surface soil PCB concentrations exceeding 1.0 mg/kg, the unrestricted cleanup value established for High Occupancy Areas.

Figure 5-3 depicts the locations of the surface soil exceedances, except arsenic, at the Site. Arsenic exceedances are depicted on **Figure 5-4** since all but three (3) samples contained detections above the RSL. **Table 5-1** presents the detections of analytes above the regulatory levels for surface soil samples for each analysis group.

Table 5-1
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SSA01		FIN-SSA02	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	7	J	5	
Benzo(a)pyrene	210	µg/kg	371		ND	

Parameter	Limit	Sample Number	FIN-SSA03		FIN-SSA04	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	12	J	5.8	
Benzo(a)pyrene	210	µg/kg	1220		ND	
Benzo(b)fluoranthene	2100	µg/kg	2500		ND	
Dibenzo(a,h)anthracene	210	µg/kg	475		ND	

Parameter	Limit	Sample Number	FIN-SSA05		FIN-SSA06	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	6.5		4.7	

Parameter	Limit	Sample Number	FIN-SSA07		FIN-SSA08	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	2.8	J	4.9	

Parameter	Limit	Sample Number	FIN-SSA09		FIN-SSA10	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	5.7		3.8	J

Parameter	Limit	Sample Number	FIN-SSA11		FIN-SSB01	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	5.7		5.8	

Parameter	Limit	Sample Number	FIN-SSB02		FIN-SSB03	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	5.6	J	10.5	

Parameter	Limit	Sample Number	FIN-SSB04		FIN-SSB05	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	5.9		4.5	
Benzo(a)pyrene	210	µg/kg	136	J	330	

Table 5-1 - Continued
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SSB06		FIN-SSB07	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	4.1		4.5	J

Parameter	Limit	Sample Number	FIN-SSB08		FIN-SSB09	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	4.9		3.6	
Benzo(a)pyrene	210	µg/kg	911		ND	
Dibenzo(a,h)anthracene	210	µg/kg	218		ND	

Parameter	Limit	Sample Number	FIN-SSB10		FIN-SSB11	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	3.7		ND	

Parameter	Limit	Sample Number	FIN-SSB12		FIN-SSB13	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	5.7		4.7	

Parameter	Limit	Sample Number	FIN-SSB14		FIN-SSC01	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	2.3		3.7	
Benzo(a)pyrene	210	µg/kg	ND		293	

Parameter	Limit	Sample Number	FIN-SSC02		FIN-SSC03	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	6.4		6	J
Benzo(a)pyrene	210	µg/kg	ND		320	

Parameter	Limit	Sample Number	FIN-SSC04		FIN-SSC05	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	8.3		3.4	
Benzo(a)pyrene	210	µg/kg	ND		543	

Parameter	Limit	Sample Number	FIN-SSC06		FIN-SSC07	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	3.2		ND	

Table 5-1 - Continued
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SSC08		FIN-SSC09	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	5.1		7.8	

Parameter	Limit	Sample Number	FIN-SSC10		FIN-SSC11	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	6.1		6.5	

Parameter	Limit	Sample Number	FIN-SSC12		FIN-SSC13	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1248	740	µg/kg	1160		ND	
Arsenic	1.6	mg/kg	5.7		4.1	
Benzo(a)pyrene	210	µg/kg	532		ND	

Parameter	Limit	Sample Number	FIN-SSC14		FIN-SSC15	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	7890		ND	
Arsenic	1.6	mg/kg	4.2		11.5	
Lead	800	mg/kg	832		61.3	

Parameter	Limit	Sample Number	FIN-SSD01		FIN-SSD02	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	4.9		3	J

Parameter	Limit	Sample Number	FIN-SSD03		FIN-SSD04	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	1400		38100	J
TPH (>C28-C35)	5000*	mg/kg	2010		39500	
Aroclor 1260	740	µg/kg	141	J	767	J
Arsenic	1.6	mg/kg	11.5		ND	

Parameter	Limit	Sample Number	FIN-SSD05		FIN-SSD06	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	44200		181	
Aroclor 1260	740	µg/kg	16400		ND	
Arsenic	1.6	mg/kg	4.1		6.3	

Table 5-1 - Continued
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SSD07		FIN-SSD08	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	759		100	J
Arsenic	1.6	mg/kg	6.9		3.8	

Parameter	Limit	Sample Number	FIN-SSD09		FIN-SSD10	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	ND		11000	
TPH (>C28-C35)	5000*	mg/kg	ND		12800	
Aroclor 1260	740	µg/kg	222		1640	
Arsenic	1.6	mg/kg	4		19.7	
Lead	800	mg/kg	95.9		2560	
Benzo(a)anthracene	2100	µg/kg	ND		2130	J
Benzo(a)pyrene	210	µg/kg	ND		4270	
Benzo(b)fluoranthene	2100	µg/kg	ND		9480	
Dibenzo(a,h)anthracene	210	µg/kg	ND		1690	J
Indeno(1,2,3-cd)pyrene	2100	µg/kg	ND		7570	

Parameter	Limit	Sample Number	FIN-SSD11		FIN-SSD12	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	33500		34200	
TPH (>C28-C35)	5000*	mg/kg	22000		17800	
Aroclor 1254	740	µg/kg	ND		18000	J
Aroclor 1260	740	µg/kg	929		6250	
Arsenic	1.6	mg/kg	14.3		7.8	
Lead	800	mg/kg	4310		351	

Parameter	Limit	Sample Number	FIN-SSD13		FIN-SSD14	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	7890		3380	
TPH (>C28-C35)	5000*	mg/kg	8920		3510	
Aroclor 1260	740	µg/kg	662		1810	
Arsenic	1.6	mg/kg	7.8		9.8	
Lead	800	mg/kg	153		1700	

Table 5-1 - Continued
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SSD15		FIN-SSD16	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	70		6.7	
Lead	800	mg/kg	1180		77.5	

Parameter	Limit	Sample Number	FIN-SSE04		FIN-SSE05	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	6.3		14.3	

Parameter	Limit	Sample Number	FIN-SSE06		FIN-SSE07	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	11.6		34.5	
Benzo(a)pyrene	210	µg/kg	721		ND	
Dibenzo(a,h)anthracene	210	µg/kg	346		ND	

Parameter	Limit	Sample Number	FIN-SSE08		FIN-SSE09	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	6.1		5.5	

Parameter	Limit	Sample Number	FIN-SSE10		FIN-SSE11	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	7.6		16.8	
Benzo(a)pyrene	210	µg/kg	ND		255	

Parameter	Limit	Sample Number	FIN-SSE12		FIN-SSE13	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	2050		2370	
Aroclor 1260	740	µg/kg	2080		2070	
Arsenic	1.6	mg/kg	5.5		7.2	

Parameter	Limit	Sample Number	FIN-SSE14		FIN-SSE15	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	7790		ND	
TPH (>C28-C35)	5000*	mg/kg	8270		ND	
Arsenic	1.6	mg/kg	3.9		13.9	

Table 5-1 - Continued
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SSE16		FIN-SSF14	
		Units	Detection	DVQ	Detection	DVQ
TPH (>C12-C28)	2500*	mg/kg	108		7260	
TPH (>C28-C35)	5000*	mg/kg	127		7100	
Aroclor 1260	740	µg/kg	ND		1220	
Arsenic	1.6	mg/kg	4.8		11.8	
Benzo(a)pyrene	210	µg/kg	1060		ND	

Parameter	Limit	Sample Number	FIN-SSF15		FIN-SB01-SS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	480		117	
Arsenic	1.6	mg/kg	8.1		6.4	
Benzo(a)pyrene	210	µg/kg	ND		463	

Parameter	Limit	Sample Number	FIN-SB02-SS01-01		FIN-SB03-SS01-01	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	9.8		4.9	
Benzo(a)pyrene	210	µg/kg	1040		164	J

Parameter	Limit	Sample Number	FIN-SB04-SS01-01		FIN-SB05-SS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	1270		ND	
Arsenic	1.6	mg/kg	9.1		43.8	
Benzo(a)pyrene	210	µg/kg	ND		1190	
Dibenzo(a,h)anthracene	210	µg/kg	ND		217	

Parameter	Limit	Sample Number	FIN-SB06-SS01-01		FIN-SB07-SS01-01	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	6		6.3	
Benzo(a)pyrene	210	µg/kg	480		ND	

Table 5-1 - Continued
Surface Soil Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SB08-SS01-01		FIN-SB09-SS01-01	
		Units	Detection	DVQ	Detection	DVQ
Arsenic	1.6	mg/kg	4		4.4	

Parameter	Limit	Sample Number	FIN-SB10-SS01-01	
		Units	Detection	DVQ
Arsenic	1.6	mg/kg	9.1	

Notes and Abbreviations:

Source: U.S. Environmental Protection Agency Regional, Industrial Soil Screening Levels, Ver. 2009

* ODEQ Regulatory Limit

Bolded and yellow shaded area exceed screening levels

J - Estimated Values

mg/kg - milligrams per kilogram

µg/kg - micrograms per kilogram

DVQ- Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

5.1.2 Subsurface Soil Samples from Borings

A total of thirteen (13) subsurface soil samples were collected from the ten (10) soil borings. This total includes ten (10) normal samples, one (1) duplicate, one (1) matrix spike, and one (1) matrix spike duplicate.

The following VOCs were detected in the subsurface soil samples above their MDLs: 2-methylnaphthalene (SB02 and SB06), 1,2,4-trichlorobenzene (SB04), benzene (SB04), and chlorobenzene (SB04). None of the VOC detections were above their RSLs in the subsurface soil samples.

The only subsurface soil sample which contained SVOCs above their MDLs was SB01. Benzo(a)pyrene was detected at a concentration of 1,250 µg/kg which exceeds its RSL of 210 µg/kg. Benzo(b)fluoranthene was detected at a concentration of 4,980 µg/kg which exceeds its RSL of 2,100 µg/kg. Dibenzo(a,h)anthracene was detected at a concentration of 515 µg/kg which exceeds its RSL of 210 µg/kg.

PCP, identified in both the SVOC and herbicide lists, was detected in subsurface soil sample SB04 at a concentration of 11 µg/kg. This detection does not exceed the RSL for PCP of 9,000 µg/kg. MCP, another component of herbicides, was detected in subsurface soil sample SSB09 at a concentration of 33,000 µg/kg. This MCP detection does not exceed the RSL of 620,000 µg/kg. No other herbicide components were detected in any other surface soil samples.

GROs were detected in samples SB02 and SB03 at concentrations of 103 and 9.04 mg/kg. These GRO detections did not exceed the ODEQ risk-based action limit of 2,500 mg/kg. GROs were not detected in any other subsurface soil samples. DROs were detected in samples SB02, SB03, SB04, and SB10 at concentrations of 10.7 to 101 mg/kg. These DRO detections did not exceed the ODEQ risk-based action limit of 2,500 mg/kg. DROs were not detected in any other subsurface soil samples. LORO were not identified in any of the subsurface soil samples.

PP Metals were screened and detected in each of the ten (10) normal surface soil samples, although arsenic was the only metal detected above its RSL. Arsenic concentrations ranged from 2.4 to 30.3 mg/kg and exceeded its RSL of 1.6 mg/kg in all subsurface soil samples. The USGS has reported that naturally occurring arsenic levels in Oklahoma soils typically range from 0 to 32 mg/kg.

PCB concentration was detected above the RSL for PCB-1260 of 740 µg/kg in one (1) subsurface soil sample. The single exceedance of PCB-1260 was in sample SB04 at a concentration of 124,000 µg/kg. There were no other PCB detections that exceeded their RSLs in the subsurface soils.

Figure 5-5 depicts the locations of the subsurface soil exceedances at the Site. **Table 5-2** presents the detections of analytes above the regulatory levels for subsurface soil samples for each analysis group.

Table 5-2
Subsurface Soil Samples Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SB01-DS01-01		FIN-SB02-DS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	218		ND	
Arsenic	1.6	mg/kg	2.4		9.6	
Benzo(a)pyrene	210	µg/kg	1250		ND	
Benzo(b)fluoranthene	2100	µg/kg	4980		ND	
Dibenzo(a,h)anthracene	210	µg/kg	515		ND	

Parameter	Limit	Sample Number	FIN-SB03-DS01-01		FIN-SB04-DS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	ND		124000	
Arsenic	1.6	mg/kg	14		13.3	
Benzo(a)pyrene	210	µg/kg	ND		ND	
Benzo(b)fluoranthene	2100	µg/kg	ND		ND	
Dibenzo(a,h)anthracene	210	µg/kg	ND		ND	

Parameter	Limit	Sample Number	FIN-SB05-DS01-01		FIN-SB06-DS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	ND		ND	
Arsenic	1.6	mg/kg	8.3		30.3	
Benzo(a)pyrene	210	µg/kg	ND		ND	
Benzo(b)fluoranthene	2100	µg/kg	ND		ND	
Dibenzo(a,h)anthracene	210	µg/kg	ND		ND	

Parameter	Limit	Sample Number	FIN-SB07-DS01-01		FIN-SB08-DS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	ND		ND	
Arsenic	1.6	mg/kg	18.7		12.1	
Benzo(a)pyrene	210	µg/kg	ND		ND	
Benzo(b)fluoranthene	2100	µg/kg	ND		ND	
Dibenzo(a,h)anthracene	210	µg/kg	ND		ND	

Table 5-2 - Continued
Subsurface Soil Samples Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SB09-DS01-01		FIN-SB10-DS01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	740	µg/kg	ND		ND	
Arsenic	1.6	mg/kg	23.7		6.8	
Benzo(a)pyrene	210	µg/kg	ND		ND	
Benzo(b)fluoranthene	2100	µg/kg	ND		ND	
Dibenzo(a,h)anthracene	210	µg/kg	ND		ND	

Notes and Abbreviations:

Source: U.S. Environmental Protection Agency Regional, Industrial Soil Screening Levels, Ver. 2009

Bolded and yellow shaded area exceed screening levels

mg/kg - milligrams per kilogram

µg/kg - micrograms per kilogram

DVQ- Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

5.2 Groundwater Analytical Results

A total of thirteen (13) groundwater samples were collected from soil borings throughout the Site. The total number of samples includes ten (10) normal samples, one (1) QC duplicate sample, one (1) MS sample, and one (1) MSD sample. The analytical results were screened against the USEPA MCLs or USEPA RSLs for Residential Tap Water (USEPA 2010) when MCLs were not available. The ODEQ risk-based screening level of 1.0 mg/L for GRO and DRO was used to screen all collected groundwater samples (ODEQ 2009). **Appendix C** includes data tables that list every sample for which at least one constituent was detected above the Method Detection Limit. Complete copies of the analytical results, chain of custody forms, and the data validation report are contained on compact disk in **Appendix D**. **Figure 5-6** depicts the locations of the groundwater exceedances at the Site.

The following VOCs were detected in the groundwater samples above their MDLs: acetone (SB01), chloroform (SB01 and SB10), chlorobenzene (SB04), 1,2-dichlorobenzene (SB04), 1,4-dichlorobenzene (SB04), 1,1-dichloroethane (SB02), cis-1,2-dichloroethylene (SB02), methyl chloride (SB09), 1,2,4-trichlorobenzene (SB04), and trichloroethylene (SB02). The detection of 1,2,4-trichlorobenzene in sample SB04 (846 µg/L) exceeded its RSL of 70 µg/L. Additionally, the

detections of chloroform in samples SB01 and SB10 (0.77 and 0.67 µg/L, respectively) exceeded its RSL of 0.15 µg/L.

The following SVOCs were detected in the groundwater samples above their MDLs: acenaphthene (SB05), benzo(b)fluoranthene (SB01), benzo(g,h,i)perylene (SB01), chrysene (SB01), dibenzofuran (SB05), fluorene (SB05), 2-methylnaphthalene (SB02), naphthalene (SB02), phenanthrene (SB02 and SB05), and pyrene (SB01). The detection of naphthalene in sample SB02 (2.4 µg/L) exceeded its RSL of 0.14 µg/L. No other SVOCs exceeded their RSLs in any of the groundwater samples.

There were no detections of any herbicide constituents above their MDLs in any of the groundwater samples.

GROs were detected above their MDL in samples SB04 at a concentration of 0.0722 mg/L. This GRO detection did not exceed the ODEQ risk-based action limit of 1 mg/L. GROs were not detected in any other groundwater samples. DROs were detected in samples SB01, SB04, SB05, SB07, SB08, SB09, and SB10 at concentrations of 0.168 to 0.827 mg/L. These DRO detections did not exceed the ODEQ risk-based action limit of 1 mg/L. DROs were not detected in any other groundwater samples.

PP Metals were screened and detected in each of the ten (10) normal groundwater samples. The metals arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, thallium, and zinc were detected above their RSLs in the groundwater samples. Arsenic concentrations ranged from ND to 646 µg/L and exceeded its RSL of 10 µg/L in samples SB01, SB02, SB05, SB06, and SB09. Beryllium concentrations ranged from ND to 82.9 µg/L and exceeded its RSL of 4 µg/L in samples SB01, SB02, SB06, and SB09. Cadmium concentrations ranged from ND to 433 µg/L and exceeded its RSL of 5 µg/L in samples SB01, SB02, and SB09. Chromium concentrations ranged from ND to 2,230 µg/L and exceeded its RSL of 100 µg/L in samples SB01, SB02, and SB09. Copper concentrations ranged from ND to 3,860 µg/L and exceeded its RSL of 1330 µg/L in samples SB01 and SB02. Lead concentrations ranged from ND to 16,000 µg/L and exceeded its RSL of 15 µg/L in samples SB01, SB02, and SB09. Mercury concentrations ranged from ND to 8.6 µg/L and exceeded its RSL of 2 µg/L in sample SB01. Nickel concentrations ranged from ND to 3,240 µg/L and exceeded its RSL of 730 µg/L in samples SB01 and SB02. Thallium concentrations ranged from ND to 13.2 µg/L and exceeded its RSL of 2 µg/L in samples SB01 and SB02. Zinc

concentrations ranged from ND to 0.77 µg/L and exceeded its RSL of 0.15 µg/L in samples SB01. A majority of the metals exceedances occurred in samples SB01, SB02, and SB09. Groundwater samples were collected from undeveloped temporary monitoring wells as grab samples. Therefore, the presence of sediments which could have had adsorbed metals on the sediment particles. As the groundwater samples were unfiltered, the sample preparation would have digested the adsorbed metals from the sediments, adding to the dissolved metals in the groundwater samples.

PCB constituents were detected above their MDLs in only one groundwater sample. PCB-1260 was detected at a concentration of 4.7 µg/L in sample SB04. This detection exceeded the PCB-1260 RSL of 0.034 µg/L. There were no other PCB detections that exceeded their MDLs in the groundwater samples.

Table 5-3
Groundwater Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SB01-GW01-01		FIN-SB02-GW01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	0.034	µg/L	ND		ND	
Arsenic	10	µg/L	533		646	
Beryllium	4	µg/L	34.4		82.9	
Cadmium	5	µg/L	433		49.2	
Chromium	100	µg/L	838		2230	
Copper	1300	µg/L	3860		1970	
Lead	15	µg/L	16000		762	
Mercury	2	µg/L	8.6		0.58	J
Nickel	730**	µg/L	1040		3240	
Thallium	2	µg/L	13.2	J	2.2	J
Zinc	11000**	µg/L	192000		8930	
Naphthalene	0.14	µg/L	ND		2.4	J
Chloroform	0.15**	µg/L	0.77	J	ND	
1,2,4-Trichlorobenzene	70	µg/L	ND		ND	

Parameter	Limit	Sample Number	FIN-SB03-GW01-01		FIN-SB04-GW01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	0.034	µg/L	ND		4.7	
Arsenic	10	µg/L	7.4	J	ND	
Beryllium	4	µg/L	ND		ND	
Cadmium	5	µg/L	ND		ND	
Chromium	100	µg/L	8.4	J	2.5	J
Copper	1300	µg/L	6.4	J	3	J
Lead	15	µg/L	6.1	J	3.4	J
Mercury	2	µg/L	ND		ND	
Nickel	730**	µg/L	15.2	J	5.4	J
Thallium	2	µg/L	0.089	J	0.15	J
Zinc	11000**	µg/L	ND		14.2	J
Naphthalene	0.14	µg/L	ND		ND	
Chloroform	0.15**	µg/L	ND		ND	
1,2,4-Trichlorobenzene	70	µg/L	ND		846	

Table 5-3 - Continued
Groundwater Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SB05-GW01-01		FIN-SB06-GW01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	0.034	µg/L	ND		ND	
Arsenic	10	µg/L	43.2		37.9	
Beryllium	4	µg/L	4		4.2	
Cadmium	5	µg/L	1.4	J	ND	
Chromium	100	µg/L	71		89.8	
Copper	1300	µg/L	71.6		73.7	
Lead	15	µg/L	123		93.6	
Mercury	2	µg/L	0.2	J	ND	
Nickel	730**	µg/L	101		139	
Thallium	2	µg/L	1.84	J	0.7	J
Zinc	11000**	µg/L	201		200	
Naphthalene	0.14	µg/L	ND		ND	
Chloroform	0.15**	µg/L	ND		ND	
1,2,4-Trichlorobenzene	70	µg/L	ND		ND	

Parameter	Limit	Sample Number	FIN-SB07-GW01-01		FIN-SB08-GW01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	0.034	µg/L	ND		ND	
Arsenic	10	µg/L	1.2	J	ND	
Beryllium	4	µg/L	ND		ND	
Cadmium	5	µg/L	ND		ND	
Chromium	100	µg/L	ND		2.3	J
Copper	1300	µg/L	ND		2.8	J
Lead	15	µg/L	3.3	J	4.3	J
Mercury	2	µg/L	ND		ND	
Nickel	730**	µg/L	2.4	J	19.2	J
Thallium	2	µg/L	ND		ND	
Zinc	11000**	µg/L	9	J	17.8	J
Naphthalene	0.14	µg/L	ND		ND	
Chloroform	0.15**	µg/L	ND		ND	
1,2,4-Trichlorobenzene	70	µg/L	ND		ND	

Table 5-3 - Continued
Groundwater Analytical Detections Above Applicable Regulatory Limits
Fintube TBA

Parameter	Limit	Sample Number	FIN-SB09-GW01-01		FIN-SB10-GW01-01	
		Units	Detection	DVQ	Detection	DVQ
Aroclor 1260	0.034	µg/L	ND		ND	
Arsenic	10	µg/L	377		ND	
Beryllium	4	µg/L	17.3		ND	
Cadmium	5	µg/L	5.1	J	1.6	J
Chromium	100	µg/L	366		3	J
Copper	1300	µg/L	423		4.1	J
Lead	15	µg/L	1690		7.3	J
Mercury	2	µg/L	0.85	J	ND	
Nickel	730**	µg/L	633		39.6	J
Thallium	2	µg/L	5.5	J	ND	
Zinc	11000**	µg/L	1020		42.1	
Naphthalene	0.14	µg/L	ND		ND	
Chloroform	0.15**	µg/L	ND		0.67	J
1,2,4-Trichlorobenzene	70	µg/L	ND		ND	

Notes and Abbreviations:

Source: U.S. Environmental Protection Agency, Regional Screening Levels - Water MCL, Ver. 2009

**U.S. Environmental Protection Agency, Regional Screening Levels-Tap water, Ver. 2009

Bolded and yellow shaded area exceed screening levels

J - Estimated Values

mg/L - milligrams per kilogram

µg/L - micrograms per kilogram

QVQ Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

5.3 Asbestos Analytical Results

An asbestos inspection was conducted on April 16, 2010, at the Site by a USEPA-accredited and ODOL-licensed asbestos inspector/management planner with Environmental Hazard Control, Inc. During the inspection, twenty-one (21) samples were collected from sixteen (16) homogenous areas from the Fintube Building Complex and nine (9) samples were collected from seven (7) homogenous areas from the Evans Building Complex. The following types of materials were sampled and analyzed for ACM:

- Hard Pack Fittings
- Floor Tile

- Ceiling Tile
- Drywall, Tape, and Joint Compound
- Stucco Finish
- Window Caulking
- Attic Insulation
- Duct Insulation
- Wall Plaster
- Window Putty
- Yellow Kickboard Glue

All samples were analyzed using Polarized Light Microscopy (PLM) in accordance with USEPA Method 600R-93/116. If the presence of asbestos was confirmed, the percentage of asbestos containing material versus non-asbestos containing material was visually estimated by a combination of Polarized Light and Stereo Microscope. A review of laboratory results revealed the following asbestos containing materials were identified above the USEPA threshold of one percent (1%) as determined by PLM Microscopy:

Category I non-friable materials

The following Category I non-friable materials were identified from the inspection process and are currently classified as Category I non-friable materials:

- None

Category II non-friable materials

The following Category II non-friable materials were identified during the inspection process:

- None

Regulated Asbestos Containing Materials (RACM)

The following regulated asbestos containing materials (RACM) were identified during the inspection process:

- Approximately 10 linear feet and 10 square feet of asbestos containing thermal system pipe fittings and floor debris located in locker room area of main building of the Fintube Building Complex.

- Approximately 34 linear feet of asbestos containing thermal system pipe insulation located in main warehouse of Evans Building Complex.

The full asbestos inspection report is available in **Appendix F**.

5.4 Lead-Based Paint Inspection

An LBP inspection was performed at the Site on May 16, 2010. All assay tests for LBP were taken with Scitec XRF-MAP 4 Spectrum Analyzer Serial Number M41254 in the Unlimited Mode. All paint chip samples were analyzed by Quantem Laboratories using USEPA Method 7420, Atomic Absorption.

For this report a "Positive" refers to a sample that has lead concentration of greater than 1.0 mg/cm² by XRF reading or 5,000 parts per million (ppm) by paint-chip analysis. "Negative" refers to a sample that has a lead concentration of less than 1.0 mg/cm² by XRF reading or 5,000 ppm by paint-chip analysis.

The following information is pertinent to this report:

1. Lead was banned in residential and commercial used paint in 1978.
2. The Fintube and Evans Buildings were built prior to 1978.
3. There were 73 XRF samples collected and analyzed from Fintube buildings. There were 71 XRF samples collected and analyzed from Evans buildings.
4. There were twenty (20) paint chip samples collected and analyzed, ten from Fintube buildings and ten from Evans buildings.
5. Lead above the permissible level of 1.0 mg/cm² or 5,000 ppm was found within the sampled areas as follows:

Fintube Building Complex

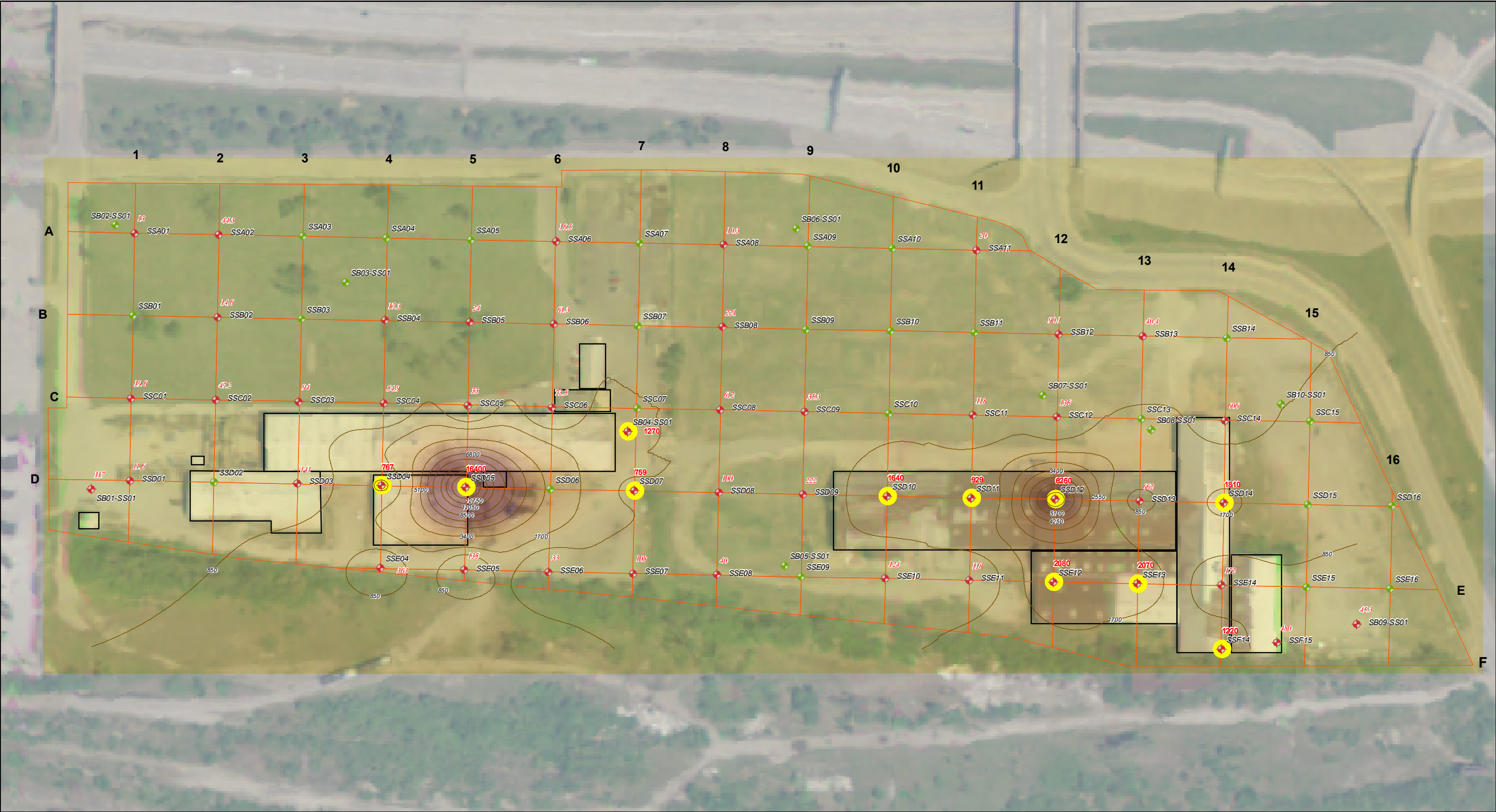
- Exterior large sliding door paint, east wall main building, south wall main building, and west building north wall,
- Exterior and Interior Red iron I-beams columns
- Interior yellow painted stairs along east wall

Evans Building Complex

- Interior half wall brick paint
- Interior I-beam columns (red)

- Interior green concrete stem wall paint
 - Interior yellow stairs paint
 - Interior I-beam columns (yellow)
6. Lead was found in some concentration in almost all painted surfaces so therefore Occupational Safety and Health Administration (OSHA) regulations will be required to be followed when working with these painted surfaces.
 7. No substrate correction was necessary.
 8. Walls are numbered in a clockwise manner starting with wall 1 being address side.
 9. Department of Housing and Urban Development (HUD) Guidelines classify painted surface conditions using the following standards:

Type of Building Component	Intact (Good)	Fair	Poor
Exterior components with large surface areas	Entire surface is intact	Less than or equal to 10 square feet.	More than 10 square feet.
Interior components with large surface areas	Entire surface is intact.	Less than or equal to 2 square feet.	More than 2 square feet.
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim).	Entire surface is intact.	Less than or equal to 10 percent of the total surface area of the component.	More than 10 percent of the total surface area of the component.



Surface Soil Sample Points

Surface Soil Sample points with PCB Detections (µg/kg)

Surface Soil Sample Exceedances

Sample Grid

Building Footprint

0

125

250

500

Feet

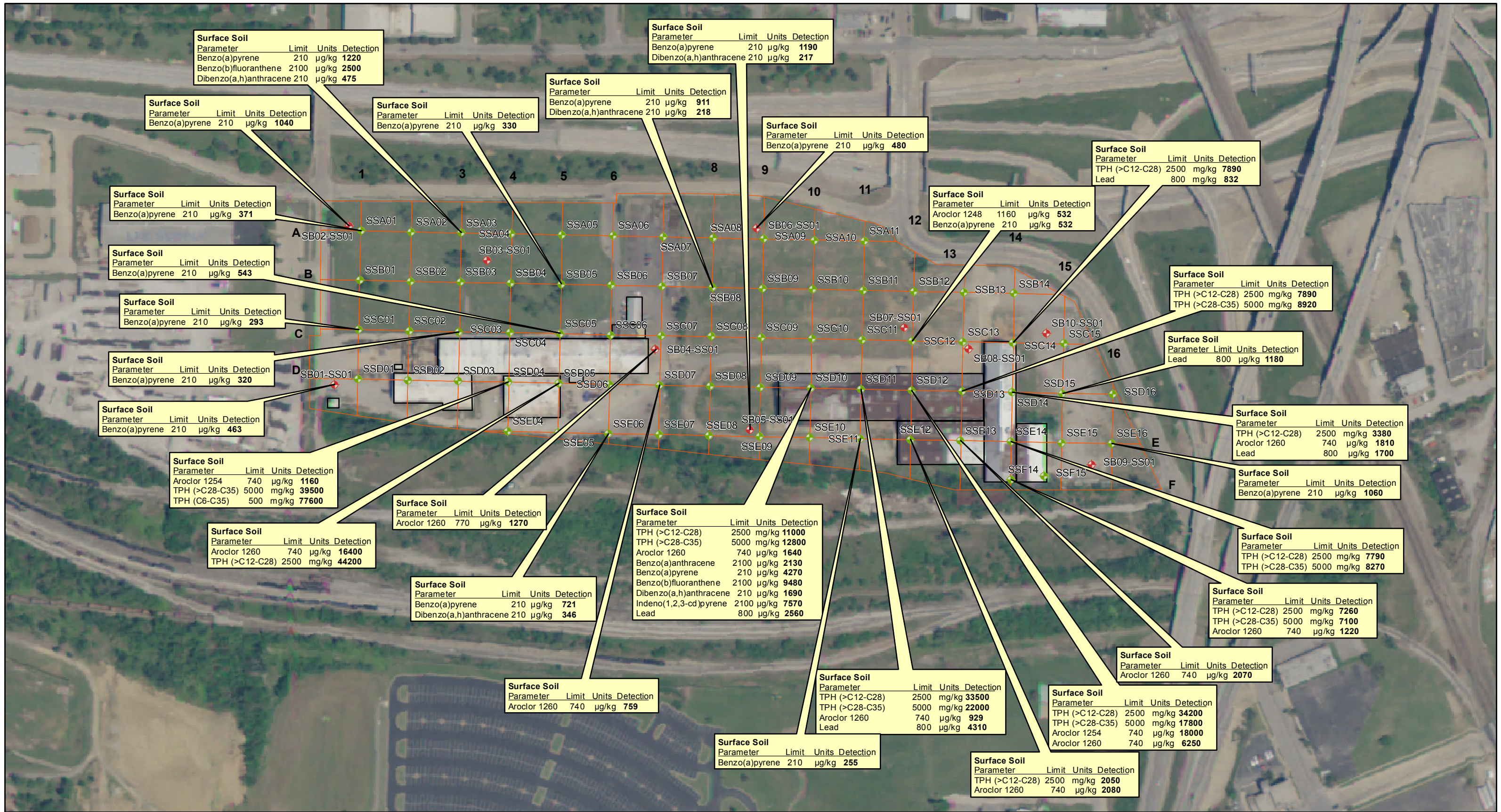
Imagery Source: maps.scigis.com OK_Aerials_2008 service

PCB Isopleth Map

Relative to Site Layout

Former Fintube TBA Site

SCALE: 1:1500	DATE: May 2010	FIGURE NO. Figure 5-1
APPROVED BY: CBM	DRAWN BY: JPV	PROJECT NO. 1303.RPT.00



Soil Boring Locations

Surface Soil Sample Points

Surface Soil Grid

Building Footprint

0125250500750

Feet

N

ALLCONSULTING

Surface Soil Exceedances

Former Fintube TBA Site

SCALE:
1:2500

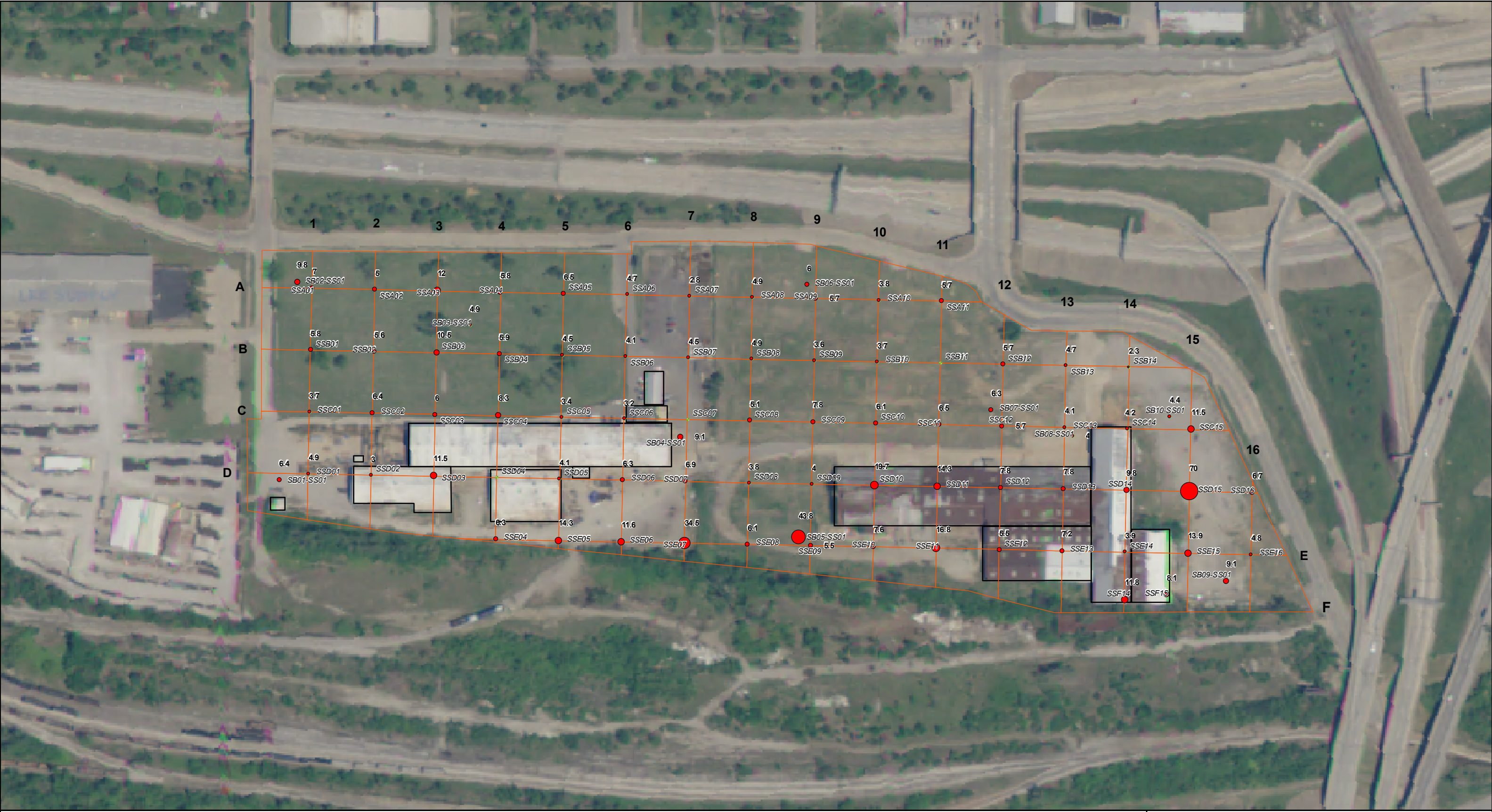
DATE:
May 2010

APPROVED BY:
CBM

FIGURE NO.
Figure 5-3

PROJECT NO.
1303.RPT.00

DRAWN BY:
JPV



Surface Soil Sample Points

Sample Grid

Building Footprint

Arsenic Concentrations

1 mg/kg

10 mg/kg

100 mg/kg

0

100

200

400

Feet

N

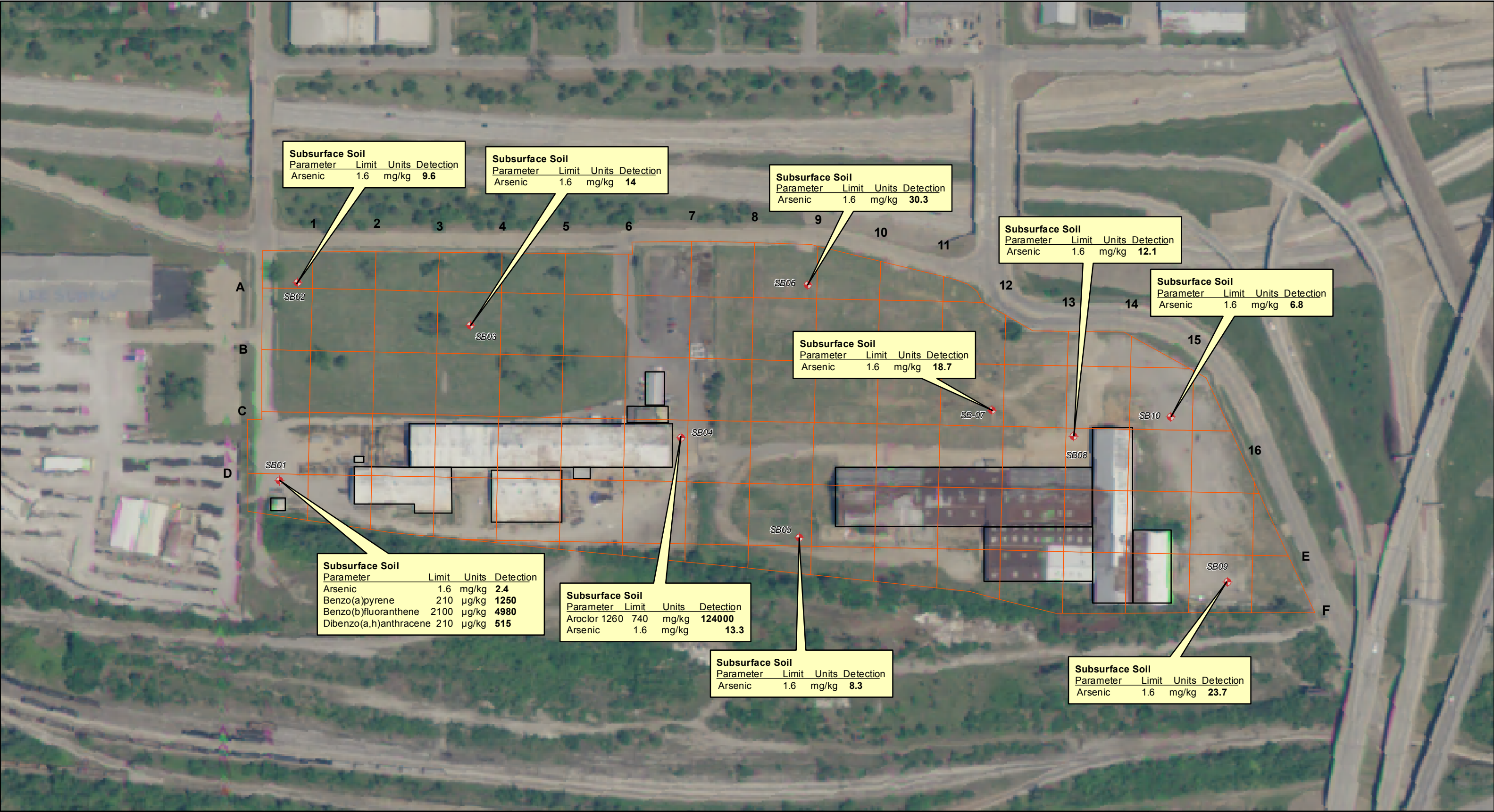
Imagery Source: maps.scigis.com OK_Aerials_2008 service

ALLCONSULTING

Arsenic Exceedance Surface Soil Sample Points

Former Fintube TBA Site

SCALE: 1:2000	DATE: May 2010	FIGURE NO. Figure 5-4
APPROVED BY: CBM	DRAWN BY: JPV	PROJECT NO. 1303.RPT.00



Soil Boring Locations

Sample Grid

Building Footprint

0

125

250

500

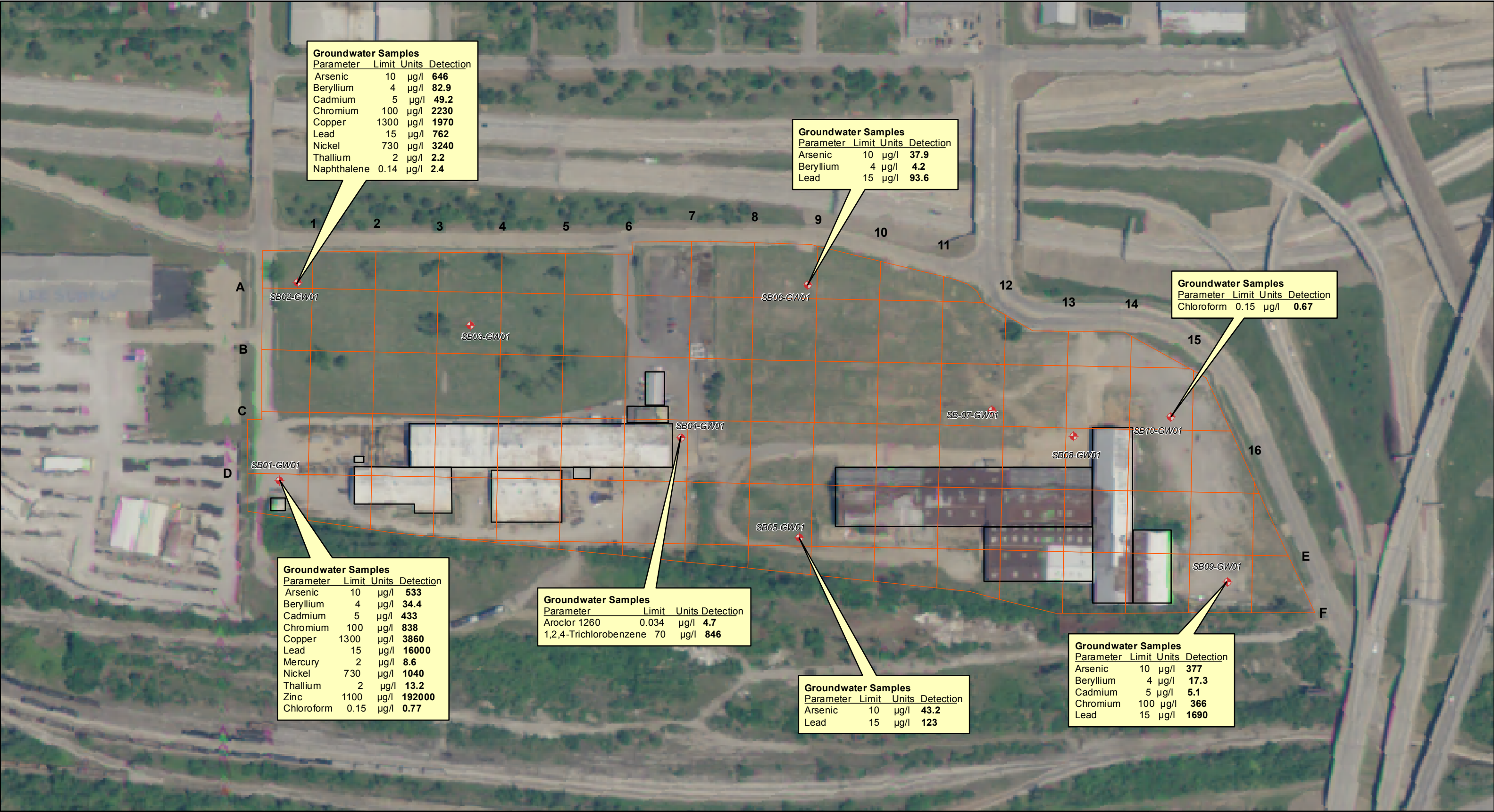
Feet

Subsurface Soil Exceedances

Former Fintube TBA Site

SCALE: 1:2000	DATE: May 2010	FIGURE NO. Figure 5-5
APPROVED BY: CBM	DRAWN BY: JPV	PROJECT NO. 1303.RPT.00

Imagery Source: maps.scgis.com OK_Aerials_2008 service



Soil Boring Locations

Sample Grid

Building Footprint

0

125

250

500

Feet

Groundwater Exceedances

Former Fintube TBA Site

SCALE: 1:2000	DATE: May 2010	FIGURE NO. Figure 5-6
APPROVED BY: CBM	DRAWN BY: JPV	PROJECT NO. 1303.RPT.00

6. SUMMARY

The following summarizes the findings of this investigation:

The Site mainly consists of two building complexes and two vacant lots. The southern complex, identified as the Evans Building Complex, consists of three north-south oriented buildings to the north and two east-west oriented buildings to the south. The northern complex, identified as the Fintube Building Complex, consists of four buildings oriented north-south and one smaller building to the southeast that is oriented east-west. The Site is located in a relatively flat area, gently sloping northwest in its northern portion with a low area between the Fintube Building Complex and the Evans Building Complex, and then sloping southwest on the southern portion of the Site.

Surface and subsurface soil analytical results were compared to USEPA RSLs for industrial soil screening levels (USEPA 2010). The ODEQ risk-based screening levels for GRO (500 mg/kg), DRO (2500 mg/kg) and LORO (5000 mg/kg) were used to screen all collected soil and sediment samples (ODEQ 2009). The analytical results for groundwater testing were screened against the USEPA MCLs or USEPA RSLs for Residential Tap Water (USEPA 2010) when MCLs were not available. The ODEQ risk-based screening levels for GRO (1 mg/L) and DRO (1 mg/L) were used to screen all collected groundwater and surface water samples (ODEQ 2009).

The following is a summary of all exceedances listed according to parameter, constituent, and then by sample number. (Duplicate, MS, and MSD samples are not included in the tabulation.)

Table 6-1
Surface Soil Sample Regulatory Exceedances
81 Soil Samples

PARAMETER	CONSTITUENT	SAMPLE NUMBER*
VOC	None	None
SVOC	Benzo(a)anthracene	SS10
	Benzo(a)pyrene	SSA01, SSA03, SSB05, SSB08, SSC01, SSC03, SSC05, SSC12, SSD10, SSE06, SSE11, SSE16, SB01, SB02, SB05, and SB06
	Benzo(b)fluoranthene	SSA03 and SSD10
	Dibenzo(a,h)anthracene	SSA03, SSB08, SSD10, SSE06, and SB05
	Indeno(1,2,3-cd)pyrene	SSD10
Metals	Arsenic	All but three samples.
	Lead	SSC14, SSD10, SSD11, SSD14, and SSD15
Herbicides	None	None
TPH	GRO	None
	DRO	SSC14, SSD04, SSD05, SSD10, SSD11, SSD12, SSD13, SSD14, SSE12, SSE14, and SSF14
	LORO	SSD04, SSD11, SSD12, and SSD13
PCBs	Aroclor-1248	SSC12
	Aroclor-1254	SSD12
	Aroclor-1260	SSD04, SSD05, SSD07, SSD10, SSD11, SSD12, SSD14, SSE12, SSE13, SSF14, and SB04

Table 6-2
Subsurface Soil Sample Regulatory Exceedances
10 Soil Samples

PARAMETER	CONSTITUENT	SAMPLE NUMBER*
VOC	None	None
SVOC	Benzo(a)pyrene	SB01
	Fluoranthene	SB01
	Dibenzo(a,h)anthracene	SB01
Metals	Arsenic	SB01, SB02, SB03, SB04, SB05, SB06, SB07, SB08, SB09, SB10
Herbicides	None	None
TPH	None	None
PCB	Aroclor-1260	SB04

*All sample numbers are FIN-SBX-01 unless otherwise indicated.

Table 6-3
Groundwater Sample Regulatory Exceedances
10 Groundwater Samples

PARAMETER	CONSTITUENT	SAMPLE NUMBER*
VOC	Chloroform	SB01 and SB10
	1,2,4-Trichlorobenzene	SB04
SVOC	Naphthalene	SB02
Metals	Arsenic	SB01, SB02, SB05, SB06, and SB09
	Beryllium	SB01, SB02, SB06, and SB09
	Cadmium	SB01, SB02, and SB09
	Chromium	SB01, SB02, and SB09
	Copper	SB01 and SB02
	Lead	SB01, SB02, SB09
	Mercury	SB01
	Nickel	SB01 and SB02
	Thallium	SB01 and SB02
TPH	Zinc	SB01
	None	None

The following RACM was identified during the inspection process:

- Approximately 10 linear feet and 10 square feet of asbestos containing thermal system pipe fittings and floor debris located in locker room area of the main building of the Fintube Building Complex.
- Approximately 34 linear feet of asbestos containing thermal system pipe insulation located in main warehouse of Evans Building Complex.

Lead above the permissible level of 1.0 mg/cm² or 5,000ppm was found within the sampled areas as follows:

Fintube Building Complex

- Exterior large sliding door paint, east wall main building, south wall main building, and west building north wall,
- Exterior and Interior Red iron I-beams columns
- Interior yellow painted stairs along east wall

Evans Building Complex

- Interior half wall brick paint
- Interior I-beam columns (red)
- Interior green concrete stem wall paint
- Interior yellow stairs paint
- Interior I-beam columns (yellow)

The following constituents have no specified regulatory limits:

- | | |
|------------------------|-------------------------|
| • Acenaphthylene | Range: 60 - 150 µg/kg |
| • Benzo(g,h,i)perylene | Range: 130 - 2600 µg/kg |
| • Phenanthrene | Range: 65 - 2600 µg/kg |

It should be noted that Arsenic was most prevalent analyte detected above the regulatory limit of 1.6 mg/kg in soils. However, the USGS has also reported that naturally occurring Arsenic levels in Oklahoma soils typically range from 0 to 32 mg/kg. Additionally, mean soil metals background concentrations for Oklahoma as reported by the USEPA in Office of Solid Waste

and Emergency Response Directive 9285.7-55 (USEPA 2003) for Arsenic was reported at 7.0 mg/kg.

6.1 Recommendations

The following summarizes the recommendations based upon the findings of this investigation:


It is recommended that access to the Site be restricted (e.g. fencing or other type barrier) to prevent the unauthorized access and potential exposure to contaminated materials within the Site. Prior to any future development within the Site, confirmation sampling should be performed to validate the original detected exceedances and to identify the vertical and horizontal extent of contamination within the proposed area(s) of development. This will allow risk-based management for future on-site development.

7. REFERENCES

- ALL Consulting (ALL). 2009. *Final Phase I Environmental Site Assessment, Fintube TBA, Tulsa, Oklahoma, September, 2009*
- ALL Consulting (ALL). 2010. *Final Work Plan, Phase II Environmental Site Assessment, Fintube TBA, Tulsa, Oklahoma, April, 2010.*
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- Oklahoma Department of Environmental Quality. 2004. Site Cleanup Using Risk-Based Decision Making. Land Protection Division. April. <http://www.deq.state.ok.us/lpdnew/FactSheets/RiskbasedDecisionGuidanceFinal.pdf>
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- U.S. Environmental Protection Agency (USEPA). 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (SW-846) Update III.
- USEPA 2003. Guidance for Developing Ecological Soil Screening Levels. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, DC. Office of Solid Waste and Emergency Response Directive 9285.7-55. November 2003.
- USEPA 2010. Generic Tables. USEPA Mid-Atlantic Risk Assessment. (updated May 27, 2010) http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm

Appendix A

Boring Logs



1718 S. Cheyenne Ave.
Tulsa, OK 74119

(918) 381-7581

Borehole Lithologic Log and Well Construction Diagram

CLIENT NAME:	USACE	PROJECT NAME:	Fintube
LEGAL LOCATION:		BOREHOLE NAME:	SB01
LATITUDE:	36.161217	PAGE:	1/1
LONGITUDE:	-95.983322	DATE STARTED:	4/14/2010
CASING STICKUP:	N/A	DATE FINISHED:	4/14/2010
GROUND SURFACE ELEVATION:	N/A	FIELD ENGINEER:	David E. Channell
CONTRACTOR:	Mohawk Drilling	CHECKED BY:	
DRILLER:	Eric	TOTAL DEPTH BORING*:	9.5 feet
DRILLING METHOD:	Hollow stem auger	BORING DIAMETER:	6 inches
DTW OBS. DURING DRILLING*:			
DTW MEAS. FROM SURFACE:	4.1 ft.		

DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 1 ft. Gravel, Gry.	100	0.0		FIN-SB01-SS01-01
	1 - 3 ft. Slt. Loam, Drk. Gry., Moist				
	3 - 7 ft. Clay, Drk. Gry. - Blk., Tite, Moist				
5'	GW @ 4.1 ft,	100	0.0		
	7 - 9 ft. - Sand, Blk., Wet - Oily - Strong Organic/Solvent Odor				Strong Organic/Solvent Odor
	9 - 9.5 ft. Clay, Gray, Tite, Moist				
10'	TD @ 9.5 ft. Rock, Gry. - V. Hard	100	0.0		FIN-SB01-DS01-01 @ 9 ft.
15'		100	0.0		
20' - 25'					

REAM HOLE TO:

CASING SIZE & TYPE:

PROTECTIVE BOX TYPE:

SURF. SEAL TYPE:

SURF. SEAL INTERVAL*:

ANNULUS FILL TYPE:

ANNULUS FILL INTERVAL:

N/A

Hollow stem auger

N/A

N/A

N/A

N/A

N/A

WELL CONSTRUCTION DETAILS:

SEAL TYPE:

SEAL INTERVAL*:

FILTER PACK TYPE:

FILTER PACK INTERVAL*:

SCREEN TYPE:

SCREEN INTERVAL*:

TOTAL DEPTH WELL*:

N/A

N/A

N/A

N/A

PVC, slotted, riser to surface, sand filter pack, bentonite to surface.

N/A

9.5 feet

WELL DEVELOPMENT DETAILS:

Developed well by air lift for mins.


Estimated initial flow from screened well at - gpm.


NOTES:

* = measured from ground surface

NA = not applicable

NR = not recorded

		1718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram	
CLIENT NAME:		USACE		PROJECT NAME: Fintube	
LEGAL LOCATION:				BOREHOLE NAME: SB02	
LATITUDE:		36.161499		PAGE: 1/1	
LONGITUDE:		-95.982285		DATE STARTED: 4/13/2010	
CASING STICKUP:		N/A		DATE FINISHED: 4/13/2010	
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER: David E. Channell	
CONTRACTOR:		Mohawk Drilling		CHECKED BY:	
DRILLER:		Eric		TOTAL DEPTH BORING*: 25 feet	
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER: 6 inches	
DTW OBS. DURING DRILLING*:					
DTW MEAS. FROM SURFACE:		13.4			
DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 6 ft. Silty Loam, Some Clay, Blk. - Drk. Gry., Moist	35	0.0		FIN-SB02-SS01-01
5'	6 - 15 ft. - Clay, Mottled Brn w/Gry, Moist, Tite	100	0.0		
10'	GW @ 13.4 feet	100	0.0		
15'	15 - 17 ft. - Clay, Gry, Moist, Tite	100	0.0		
	17 - 25 ft. - Clay, Gry, Dry - Weathered Shale				FIN-SB02-DS01-01 @ 22.5 ft.
20' - 25'					
WELL CONSTRUCTION DETAILS:					
REAM HOLE TO: N/A		SEAL TYPE: N/A			
CASING SIZE & TYPE: Hollow stem auger		SEAL INTERVAL*: N/A			
PROTECTIVE BOX TYPE: N/A		FILTER PACK TYPE: N/A			
SURF. SEAL TYPE: N/A		FILTER PACK INTERVAL*: N/A			
SURF. SEAL INTERVAL*: N/A		SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.			
ANNULUS FILL TYPE: N/A		SCREEN INTERVAL*: N/A			
ANNULUS FILL INTERVAL: N/A		TOTAL DEPTH WELL*: 25 feet			
WELL DEVELOPMENT DETAILS:					
Developed well by air lift for mins.					
Estimated initial flow from screened well at ~ gpm.					
NOTES: * = measured from ground surface					
NA = not applicable					
NR = not recorded					



1718 S. Cheyenne Ave.
Tulsa, OK 74119

(918) 381-7581

Borehole Lithologic Log and Well Construction Diagram

CLIENT NAME:	USACE	PROJECT NAME:	Fintube
LEGAL LOCATION:		BOREHOLE NAME:	SB03
LATITUDE:	36.161988	PAGE:	1/1
LONGITUDE:	-95.982406	DATE STARTED:	4/13/2010
CASING STICKUP:	N/A	DATE FINISHED:	4/13/2010
GROUND SURFACE ELEVATION:	N/A	FIELD ENGINEER:	David E. Channell
CONTRACTOR:	Mohawk Drilling	CHECKED BY:	
DRILLER:	Eric	TOTAL DEPTH BORING*:	20 feet
DRILLING METHOD:	Hollow stem auger	BORING DIAMETER:	6 inches
DTW OBS. DURING DRILLING*:			
DTW MEAS. FROM SURFACE:			

DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 4.5 ft. Silty Loam, Some Clay, Blk. - Drk. Gry., Moist	35	0.0		FIN-SB03-SS01-01
5'	4.5 - 10 ft. - Clay, Brn., Moist, Tite	100	0.0		
10'	10 - 14 ft. - Clay, Tan, Dry, Tite	100	0.0		
15'	14 - 18 ft. - Clay, Gry, Moist - Weathered Shale	100	0.0		
20' - 25'	18 - 20 ft. - Clay, Gry, Dry - Weathered Shale				FIN-SB03-DS01-01 @ 20 ft.

WELL CONSTRUCTION DETAILS:

REAM HOLE TO: N/A

CASING SIZE & TYPE: Hollow stem auger

PROTECTIVE BOX TYPE: N/A

SURF. SEAL TYPE: N/A

SURF. SEAL INTERVAL*: N/A

ANNULUS FILL TYPE: N/A

ANNULUS FILL INTERVAL: N/A

SEAL TYPE: N/A

SEAL INTERVAL*: N/A

FILTER PACK TYPE: N/A

FILTER PACK INTERVAL*: N/A

SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.

SCREEN INTERVAL*: N/A

TOTAL DEPTH WELL*: 20 feet

WELL DEVELOPMENT DETAILS:

Developed well by air lift for mins.


Estimated initial flow from screened well at - gpm.


NOTES:


* = measured from ground surface


NA = not applicable


NR = not recorded


		1718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram							
CLIENT NAME:		USACE		PROJECT NAME:		Fintube					
LEGAL LOCATION:				BOREHOLE NAME:		SB03A					
LATITUDE:		36.161988		PAGE:		1/1					
LONGITUDE:		-95.982406		DATE STARTED:		4/29/2010					
CASING STICKUP:		N/A		DATE FINISHED:		4/29/2010					
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER:		David E. Channell					
CONTRACTOR:		Mohawk Drilling		CHECKED BY:							
DRILLER:		Eric		TOTAL DEPTH BORING*:		25 feet					
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER:		6 inches					
DTW OBS. DURING DRILLING*:											
DTW MEAS. FROM SURFACE:		8.4 ft.									
DEPTH*		LITHOLOGIC DESCRIPTION		% Recovery		PID		WELL CONSTRUCTION SKETCH		SAMPLE ID, TYPE & ANALYSIS	
0		0 - 4.5 ft. Silty Loam, Some Clay, Blk. - Drk. Gry., Moist		35		0.0				No Surface Soil Sample Collected	
5'		4.5 - 10 ft. - Clay, Brn., Moist, Tite		100		0.0					
		GW @ 8.4 ft,								Well drilled to resample groundwater.	
10'		10 - 14 ft. - Clay, Tan, Dry, Tite		100		0.0					
15'		14 - 18 ft. - Clay, Gry, Moist - Weathered Shale		100		0.0					
20' - 25'		18 - 25 ft. - Clay, Gry, Dry - Weathered Shale								No Subsurface Soil Sample Collected	
WELL CONSTRUCTION DETAILS:											
REAM HOLE TO: N/A				SEAL TYPE: N/A							
CASING SIZE & TYPE: Hollow stem auger				SEAL INTERVAL*: N/A							
PROTECTIVE BOX TYPE: N/A				FILTER PACK TYPE: N/A							
SURF. SEAL TYPE: N/A				FILTER PACK INTERVAL*: N/A							
SURF. SEAL INTERVAL*: N/A				SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.							
ANNULUS FILL TYPE: N/A				SCREEN INTERVAL*: N/A							
ANNULUS FILL INTERVAL: N/A				TOTAL DEPTH WELL*: 25 feet							
WELL DEVELOPMENT DETAILS:											
Developed well by air lift for mins.											
Estimated initial flow from screened well at ~ gpm.											
NOTES: * = measured from ground surface											
NA = not applicable											
NR = not recorded											

		1718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram	
CLIENT NAME:		USACE		PROJECT NAME: Fintube	
LEGAL LOCATION:				BOREHOLE NAME: SB04	
LATITUDE:		36.162395		PAGE: 1/1	
LONGITUDE:		-95.982243		DATE STARTED: 4/13/2010	
CASING STICKUP:		N/A		DATE FINISHED: 4/13/2010	
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER: David E. Channell	
CONTRACTOR:		Mohawk Drilling		CHECKED BY:	
DRILLER:		Eric		TOTAL DEPTH BORING*: 15 feet	
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER: 6 inches	
DTW OBS. DURING DRILLING*:					
DTW MEAS. FROM SURFACE:					
DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	Gravel at Surface	35	0.0		FIN-SB04-SS01-01 @ 1 -1.5 ft.
	1 - 6 ft. Clay, Blk. - Drk. Gry., Moist				
	▼ GW @				
5'	6 - 8 ft. - Clay, Gry. w/Tan - Mottled, Dry, Damp	100	0.0		
	8 - 12 ft. - Clay, Tan, Tite, Moist				
10'	12 - 15 ft. - Clay, Gry., Tite, Dry	100	0.0		
15'	TD @ 15 ft.	100	0.0		FIN-SB04-DS01-01 @ 15 ft.
20' - 25'					
WELL CONSTRUCTION DETAILS:					
REAM HOLE TO: N/A		SEAL TYPE: N/A			
CASING SIZE & TYPE: Hollow stem auger		SEAL INTERVAL*: N/A			
PROTECTIVE BOX TYPE: N/A		FILTER PACK TYPE: N/A			
SURF. SEAL TYPE: N/A		FILTER PACK INTERVAL*: N/A			
SURF. SEAL INTERVAL*: N/A		SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.			
ANNULUS FILL TYPE: N/A		SCREEN INTERVAL*: N/A			
ANNULUS FILL INTERVAL: N/A		TOTAL DEPTH WELL*: 15 feet			
WELL DEVELOPMENT DETAILS:					
Developed well by air lift for mins.					
Estimated initial flow from screened well at ~ gpm.					
NOTES: * = measured from ground surface					
NA = not applicable					
NR = not recorded					

		1718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram	
CLIENT NAME:		USACE		PROJECT NAME: Fintube	
LEGAL LOCATION:				BOREHOLE NAME: SB05	
LATITUDE:		36.163320		PAGE: 1/1	
LONGITUDE:		-95.981455		DATE STARTED: 4/13/2010	
CASING STICKUP:		N/A		DATE FINISHED: 4/13/2010	
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER: David E. Channell	
CONTRACTOR:		Mohawk Drilling		CHECKED BY:	
DRILLER:		Eric		TOTAL DEPTH BORING*: 15 feet	
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER: 6 inches	
DTW OBS. DURING DRILLING*:					
DTW MEAS. FROM SURFACE:		7.3 ft.			
DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 3 ft. Slt. Clay, Blk. - Drk. Gry., Moist	35	0.0		FIN-SB05-SS01-01
5'	3 - 3.5 ft. Gravel, Drk. Gry, - Blk., Moist 3.5 - 7 ft. Slt. Clay, Drk. Gry., Moist	100	0.0		
10'	▼ GW @ 7.3 ft, 7 - 12 ft. - Clay, Drk. Gry, Moist	100	0.0		
15'	12 - 15 ft. - Clay, Brn. w/Gry. - Mottled, Tite, Damp TD @ 15 ft.	100	0.0		FIN-SB05-DS01-01 @ 15 ft.
20' - 25'					
WELL CONSTRUCTION DETAILS:					
REAM HOLE TO: N/A		SEAL TYPE: N/A			
CASING SIZE & TYPE: Hollow stem auger		SEAL INTERVAL*: N/A			
PROTECTIVE BOX TYPE: N/A		FILTER PACK TYPE: N/A			
SURF. SEAL TYPE: N/A		FILTER PACK INTERVAL*: N/A			
SURF. SEAL INTERVAL*: N/A		SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.			
ANNULUS FILL TYPE: N/A		SCREEN INTERVAL*: N/A			
ANNULUS FILL INTERVAL: N/A		TOTAL DEPTH WELL*: 15 feet			
WELL DEVELOPMENT DETAILS:					
Developed well by air lift for mins.					
Estimated initial flow from screened well at ~ gpm.					
NOTES: * = measured from ground surface					
NA = not applicable					
NR = not recorded					

		1718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram	
CLIENT NAME:		USACE		PROJECT NAME: Fintube	
LEGAL LOCATION:				BOREHOLE NAME: SB06	
LATITUDE:		36.163362		PAGE: 1/1	
LONGITUDE:		-95.983045		DATE STARTED: 4/13/2010	
CASING STICKUP:		N/A		DATE FINISHED: 4/13/2010	
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER: David E. Channell	
CONTRACTOR:		Mohawk Drilling		CHECKED BY:	
DRILLER:		Eric		TOTAL DEPTH BORING*: 20 feet	
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER: 6 inches	
DTW OBS. DURING DRILLING*:					
DTW MEAS. FROM SURFACE:		5.3 ft.			
DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0		60	0.0		FIN-SB06-SS01-01
	2 - 5 ft. Slt. Clay, Brn., Damp				
	3.5 - 7 ft. Slt. Clay, Drk. Gry., Moist				
5'	5 - 12 ft. No Recovery	0	0.0		
▼	GW @ 5.3 ft,				
	7 - 12 ft. - Clay, Drk. Gry, Moist				
10'		100	0.0		
	12 - 20 ft. - Clay, Gry. - Weathered Shale, Hit Water				FIN-SB06-DS01-01 @ 12 ft.
15'		100	0.0		
20' - 25'	TD @ 20 ft.				
WELL CONSTRUCTION DETAILS:					
REAM HOLE TO: N/A		SEAL TYPE: N/A			
CASING SIZE & TYPE: Hollow stem auger		SEAL INTERVAL*: N/A			
PROTECTIVE BOX TYPE: N/A		FILTER PACK TYPE: N/A			
SURF. SEAL TYPE: N/A		FILTER PACK INTERVAL*: N/A			
SURF. SEAL INTERVAL*: N/A		SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.			
ANNULUS FILL TYPE: N/A		SCREEN INTERVAL*: N/A			
ANNULUS FILL INTERVAL: N/A		TOTAL DEPTH WELL*: 20 feet			
WELL DEVELOPMENT DETAILS:					
Developed well by air lift for mins.					
Estimated initial flow from screened well at ~ gpm.					
NOTES: * = measured from ground surface					
NA = not applicable					
NR = not recorded					

		1718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram	
CLIENT NAME:		USACE		PROJECT NAME: Fintube	
LEGAL LOCATION:				BOREHOLE NAME: SB07	
LATITUDE:		36.163953		PAGE: 1/1	
LONGITUDE:		-95.982413		DATE STARTED: 4/14/2010	
CASING STICKUP:		N/A		DATE FINISHED: 4/14/2010	
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER: David E. Channell	
CONTRACTOR:		Mohawk Drilling		CHECKED BY:	
DRILLER:		Eric		TOTAL DEPTH BORING*: 15 feet	
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER: 6 inches	
DTW OBS. DURING DRILLING*:					
DTW MEAS. FROM SURFACE:		7.5 ft.			
DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 1 ft. Gravel w/fill material	100	0.0		FIN-SB07-SS01-01
	1 - 13 ft. Clay, Tan W/Gry. Mottled, Tite, Moist				
5'	GW @ 4.1 ft,	100	0.0		
	▼ GW @ 7.5 ft,				
10'		100	0.0		
	13 - 14 ft. Clay w/gravel, Tan W/Gry. Mottled, Tite, Moist				FIN-SB07-DS01-01 @ 13 ft.
15'	TD @ 15 ft.	100	0.0		
20' - 25'					
WELL CONSTRUCTION DETAILS:					
REAM HOLE TO: N/A		SEAL TYPE: N/A			
CASING SIZE & TYPE: Hollow stem auger		SEAL INTERVAL*: N/A			
PROTECTIVE BOX TYPE: N/A		FILTER PACK TYPE: N/A			
SURF. SEAL TYPE: N/A		FILTER PACK INTERVAL*: N/A			
SURF. SEAL INTERVAL*: N/A		SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.			
ANNULUS FILL TYPE: N/A		SCREEN INTERVAL*: N/A			
ANNULUS FILL INTERVAL: N/A		TOTAL DEPTH WELL*: 15 feet			
WELL DEVELOPMENT DETAILS:					
Developed well by air lift for mins.					
Estimated initial flow from screened well at ~ gpm.					
NOTES: * = measured from ground surface					
NA = not applicable					
NR = not recorded					



31718 S. Cheyenne Ave.
Tulsa, OK 74119

(918) 381-7581

Borehole Lithologic Log and Well Construction Diagram

CLIENT NAME:	USACE	PROJECT NAME:	Fintube
LEGAL LOCATION:		BOREHOLE NAME:	SB08
LATITUDE:	36.165011	PAGE:	1/1
LONGITUDE:	-95.981708	DATE STARTED:	4/14/2010
CASING STICKUP:	N/A	DATE FINISHED:	4/14/2010
GROUND SURFACE ELEVATION:	N/A	FIELD ENGINEER:	David E. Channell
CONTRACTOR:	Mohawk Drilling	CHECKED BY:	
DRILLER:	Eric	TOTAL DEPTH BORING*:	20 feet
DRILLING METHOD:	Hollow stem auger	BORING DIAMETER:	6 inches
DTW OBS. DURING DRILLING*:			
DTW MEAS. FROM SURFACE:	8.2 ft.		

DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 5 ft. - 2 ft. total recovery 2" Gravel and Clay	40	0.0		FIN-SB08-SS01-01
5'	5 - 15 ft. Clay, tan to Gry, Tite, Hard & Friable, Dry	100	0.0		
10'	▼ GW @ 8.2 ft, 13 - 15 ft. Clay w/gravel, Tan w/Gry. - Mottled, Moist	50	0.0		
15'		100	98.2		FIN-SB08-DS01-01 @ 15 ft. High PID READING
20' - 25'	TD @ 20 ft. Clay and Gravel, Gry., V. Wet				

REAM HOLE TO: N/A

CASING SIZE & TYPE: Hollow stem auger

PROTECTIVE BOX TYPE: N/A

SURF. SEAL TYPE: N/A

SURF. SEAL INTERVAL*: N/A

ANNULUS FILL TYPE: N/A

ANNULUS FILL INTERVAL: N/A

WELL CONSTRUCTION DETAILS:

SEAL TYPE: N/A

SEAL INTERVAL*: N/A

FILTER PACK TYPE: N/A

FILTER PACK INTERVAL*: N/A

SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.

SCREEN INTERVAL*: N/A

TOTAL DEPTH WELL*: 20 feet

WELL DEVELOPMENT DETAILS:

Developed well by air lift for mins.


Estimated initial flow from screened well at ~ gpm.

NOTES:

* = measured from ground surface

NA = not applicable

NR = not recorded



31718 S. Cheyenne Ave.
Tulsa, OK 74119
(918) 381-7581

Borehole Lithologic Log and Well Construction Diagram

CLIENT NAME:	USACE	PROJECT NAME:	Fintube
LEGAL LOCATION:		BOREHOLE NAME:	SB09
LATITUDE:	36.165875	PAGE:	1/1
LONGITUDE:	-95.981439	DATE STARTED:	4/14/2010
CASING STICKUP:	N/A	DATE FINISHED:	4/14/2010
GROUND SURFACE ELEVATION:	N/A	FIELD ENGINEER:	David E. Channell
CONTRACTOR:	Mohawk Drilling	CHECKED BY:	
DRILLER:	Eric	TOTAL DEPTH BORING*:	15 feet
DRILLING METHOD:	Hollow stem auger	BORING DIAMETER:	6 inches
DTW OBS. DURING DRILLING*:			
DTW MEAS. FROM SURFACE:	7.3 ft.		

DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 2 ft. - Gravel and Fill Material 2" Gravel and Clay 2 - 6 ft., Silty Clay, Brn. - Red, Moist	100	0.0		FIN-SB09-SS01-01
5'	5 - 15 ft. Clay, tan to Gry, Tite, Hard & Friable, Dry 6 - 10 ft., Clay, Tan w/Gry. Mottled, Sl. Moist	100	0.0		
▼	GW @ 7.3 ft,				
10'	10 - 11 ft., Clay, Tan w/Gry. Mottled, Moist 11 - 13 ft., Clay w/Gravel, Tan w/Gry. Mottled, Moist 13 - 15 ft. Clay, Tan to Brn., Tite, Moist	100	0.0		
15'	TD @ 15 ft.	100	0.0		FIN-SB09-DS01-01 @ 9 ft.
20' - 25'					

REAM HOLE TO: N/A

CASING SIZE & TYPE: Hollow stem auger

PROTECTIVE BOX TYPE: N/A

SURF. SEAL TYPE: N/A

SURF. SEAL INTERVAL*: N/A

ANNULUS FILL TYPE: N/A

ANNULUS FILL INTERVAL: N/A

WELL CONSTRUCTION DETAILS:

SEAL TYPE: N/A

SEAL INTERVAL*: N/A

FILTER PACK TYPE: N/A

FILTER PACK INTERVAL*: N/A

SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.

SCREEN INTERVAL*: N/A

TOTAL DEPTH WELL*: 15 feet

WELL DEVELOPMENT DETAILS:

Developed well by air lift for mins.


Estimated initial flow from screened well at ~ gpm.

NOTES:

* = measured from ground surface

NA = not applicable

NR = not recorded

		31718 S. Cheyenne Ave. Tulsa, OK 74119 (918) 381-7581		Borehole Lithologic Log and Well Construction Diagram	
CLIENT NAME:		USACE		PROJECT NAME: Fintube	
LEGAL LOCATION:				BOREHOLE NAME: SB10	
LATITUDE:		36.165966		PAGE: 1/1	
LONGITUDE:		-95.982685		DATE STARTED: 4/14/2010	
CASING STICKUP:		N/A		DATE FINISHED: 4/14/2010	
GROUND SURFACE ELEVATION:		N/A		FIELD ENGINEER: David E. Channell	
CONTRACTOR:		Mohawk Drilling		CHECKED BY:	
DRILLER:		Eric		TOTAL DEPTH BORING*: 18 feet	
DRILLING METHOD:		Hollow stem auger		BORING DIAMETER: 6 inches	
DTW OBS. DURING DRILLING*:					
DTW MEAS. FROM SURFACE:		14.4 ft.			
DEPTH*	LITHOLOGIC DESCRIPTION	% Recovery	PID	WELL CONSTRUCTION SKETCH	SAMPLE ID, TYPE & ANALYSIS
0	0 - 6 in. - Gravel, Gry. - Hard Packed	100	0.0		FIN-SB10-SS01-01
	6 in. - 2 ft, Silty Loam, Drk Brn, Moist				
	2 - 15 ft., Clay, Tan - Red, Tite, Moist				
5'		100	0.0		
	8 - 9 ft. Some Gravel				
10'		40	0.0		
	▼ GW @ 14.4 ft.				
15'	13 - 15 ft. Clay, Yellow Tan, Tite, Hard, Dry	100	0.0		FIN-SB10-DS01-01 @ 13 ft.
	TD @ 18 ft.				
20' - 25'					
WELL CONSTRUCTION DETAILS:					
REAM HOLE TO: N/A		SEAL TYPE: N/A			
CASING SIZE & TYPE: Hollow stem auger		SEAL INTERVAL*: N/A			
PROTECTIVE BOX TYPE: N/A		FILTER PACK TYPE: N/A			
SURF. SEAL TYPE: N/A		FILTER PACK INTERVAL*: N/A			
SURF. SEAL INTERVAL*: N/A		SCREEN TYPE: PVC, slotted, riser to surface, sand filter pack, bentonite to surface.			
ANNULUS FILL TYPE: N/A		SCREEN INTERVAL*: N/A			
ANNULUS FILL INTERVAL: N/A		TOTAL DEPTH WELL*: 18 feet			
WELL DEVELOPMENT DETAILS:					
Developed well by air lift for mins.					
Estimated initial flow from screened well at ~ gpm.					
NOTES: * = measured from ground surface					
NA = not applicable					
NR = not recorded					

Appendix B

Sampling Location Survey Data

Category	Label	Longitude	Latitude
Surface Soil	FIN-SSA01	-95.98147702170	36.16580182320
Surface Soil	FIN-SSA02	-95.98148354010	36.16548676830
Surface Soil	FIN-SSA03	-95.98186486520	36.16580942800
Surface Soil	FIN-SSA04	-95.98187355640	36.16549111390
Surface Soil	FIN-SSA05	-95.98225488150	36.16581594640
Surface Soil	FIN-SSA06	-95.98226392570	36.16549887620
Surface Soil	FIN-SSA07	-95.98149218240	36.16517152320
Surface Soil	FIN-SSA08	-95.98188113400	36.16517680310
Surface Soil	FIN-SSA09	-95.98227272550	36.16518648290
Surface Soil	FIN-SSA10	-95.98150186220	36.16485737000
Surface Soil	FIN-SSB01	-95.98188905380	36.16486264990
Surface Soil	FIN-SSB02	-95.98227800540	36.16486792980
Surface Soil	FIN-SSB03	-95.98150890200	36.16453969690
Surface Soil	FIN-SSB04	-95.98189697360	36.16454585680
Surface Soil	FIN-SSB05	-95.98228944520	36.16455113670
Surface Soil	FIN-SSB06	-95.98151506190	36.16422114380
Surface Soil	FIN-SSB07	-95.98190577340	36.16422906360
Surface Soil	FIN-SSB08	-95.98229824500	36.16423610350
Surface Soil	FIN-SSB09	-95.98152474170	36.16390699060
Surface Soil	FIN-SSB10	-95.98191369330	36.16391403040
Surface Soil	FIN-SSB11	-95.98230440480	36.16391667040
Surface Soil	FIN-SSB12	-95.98153354150	36.16359283740
Surface Soil	FIN-SSB13	-95.98192161310	36.16359723730
Surface Soil	FIN-SSB14	-95.98230968470	36.16360515710
Surface Soil	FIN-SSB15	-95.98153970140	36.16327604420
Surface Soil	FIN-SSC01	-95.98193217290	36.16328308410
Surface Soil	FIN-SSC02	-95.98231848450	36.16328924390
Surface Soil	FIN-SSC03	-95.98155026110	36.16295837110
Surface Soil	FIN-SSC04	-95.98193921270	36.16296717090
Surface Soil	FIN-SSC05	-95.98232728430	36.16297333080
Surface Soil	FIN-SSC06	-95.98155730100	36.16264333790
Surface Soil	FIN-SSC07	-95.98194713260	36.16265037780
Surface Soil	FIN-SSC08	-95.98233696410	36.16265741760
Surface Soil	FIN-SSC09	-95.98195593240	36.16233446460
Surface Soil	FIN-SSC10	-95.98234488400	36.16234238440
Surface Soil	FIN-SSC11	-95.98196297220	36.16202031140
Surface Soil	FIN-SSC12	-95.98235280380	36.16202559130
Surface Soil	FIN-SSC13	-95.98197265200	36.16170527820
Surface Soil	FIN-SSC14	-95.98236160360	36.16171143810
Surface Soil	FIN-SSC15	-95.98236688350	36.16139200500
Surface Soil	FIN-SSD01	-95.98264495750	36.16582094920
Surface Soil	FIN-SSD02	-95.98265199730	36.16550591600
Surface Soil	FIN-SSD03	-95.98265903720	36.16519264280
Surface Soil	FIN-SSD04	-95.98266783700	36.16487672960
Surface Soil	FIN-SSD05	-95.98305678860	36.16488112950
Surface Soil	FIN-SSD06	-95.98267575680	36.16456169640

Surface Soil	FIN-SSD07	-95.98306734830	36.16456521640
Surface Soil	FIN-SSD08	-95.98268543660	36.16424402330
Surface Soil	FIN-SSD09	-95.98307614810	36.16424930320
Surface Soil	FIN-SSD10	-95.98269247640	36.16392899010
Surface Soil	FIN-SSD11	-95.98308230800	36.16393339000
Surface Soil	FIN-SSD12	-95.98270215620	36.16361043700
Surface Soil	FIN-SSD13	-95.98309022780	36.16361747680
Surface Soil	FIN-SSD14	-95.98271014340	36.16329571020
Surface Soil	FIN-SSD15	-95.98309827560	36.16330187100
Surface Soil	FIN-SSD16	-95.98271718440	36.16297974770
Surface Soil	FIN-SSE04	-95.98310619670	36.16298590860
Surface Soil	FIN-SSE05	-95.98272598550	36.16266466530
Surface Soil	FIN-SSE06	-95.98311499790	36.16267082620
Surface Soil	FIN-SSE07	-95.98273390660	36.16234870280
Surface Soil	FIN-SSE08	-95.98312379900	36.16235486370
Surface Soil	FIN-SSE09	-95.98274182770	36.16203186020
Surface Soil	FIN-SSE10	-95.98313172010	36.16204066140
Surface Soil	FIN-SSE11	-95.98274974870	36.16171677790
Surface Soil	FIN-SSE12	-95.98313876110	36.16172469890
Surface Soil	FIN-SSE13	-95.98275854990	36.16140081540
Surface Soil	FIN-SSE14	-95.98314844240	36.16140609610
Surface Soil	FIN-SSE15	-95.98276559090	36.16108485290
Surface Soil	FIN-SSE16	-95.98315460320	36.16109189380
Surface Soil	FIN-SSF14	-95.98343976150	36.16172557900
Surface Soil	FIN-SSF15	-95.98340895740	36.16151611090

SubSurface Soil	FIN-SB01-DS01-01	-95.98332217150	36.16121655540
SubSurface Soil	FIN-SB02-DS01-01	-95.98228465370	36.16149971590
SubSurface Soil	FIN-SB03-DS01-01	-95.98240570280	36.16198799110
SubSurface Soil	FIN-SB04-DS01-01	-95.98224279390	36.16239484800
SubSurface Soil	FIN-SB05-DS01-01	-95.98145500040	36.16332000540
SubSurface Soil	FIN-SB06-DS01-01	-95.98304528920	36.16336243690
SubSurface Soil	FIN-SB07-DS01-01	-95.98241281860	36.16395307570
SubSurface Soil	FIN-SB08-DS01-01	-95.98170828200	36.16501085880
SubSurface Soil	FIN-SB09-DS01-01	-95.98143922760	36.16587581420
SubSurface Soil	FIN-SB10-DS01-01	-95.98268498260	36.16596641920
Soil Boring	FIN-SB01-GW01-01	-95.98332217150	36.16121655540
Soil Boring	FIN-SB02-GW01-01	-95.98228465370	36.16149971590
Soil Boring	FIN-SB03-GW01-01	-95.98240570280	36.16198799110
Soil Boring	FIN-SB04-GW01-01	-95.98224279390	36.16239484800
Soil Boring	FIN-SB05-GW01-01	-95.98145500040	36.16332000540
Soil Boring	FIN-SB06-GW01-01	-95.98304528920	36.16336243690
Soil Boring	FIN-SB07-GW01-01	-95.98241281860	36.16395307570
Soil Boring	FIN-SB08-GW01-01	-95.98170828200	36.16501085880
Soil Boring	FIN-SB09-GW01-01	-95.98143922760	36.16587581420
Soil Boring	FIN-SB10-GW01-01	-95.98268498260	36.16596641920

NAD 1983

Appendix C

Analytical Detection List

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSA01					
PCB	Aroclor 1260	µg/kg	13	J	740
Metals	Antimony	mg/kg	0.95	J	410
	Arsenic	mg/kg	7	J	1.6
	Beryllium	mg/kg	0.85		2000
	Cadmium	mg/kg	1.8	J	800
	Chromium	mg/kg	19.4		180,000**
	Copper	mg/kg	81.4	J	41000
	Lead	mg/kg	693		800
	Mercury	mg/kg	0.45		34
	Nickel	mg/kg	15.3	J	20000
	Silver	mg/kg	0.99	J	5100
	Zinc	mg/kg	888	J	310000
SVOCs	Anthracene	µg/kg	56.1	J	170000000
	Benzo(a)anthracene	µg/kg	324		2100
	Benzo(a)pyrene	µg/kg	371		210
	Benzo(b)fluoranthene	µg/kg	554		2100
	Benzo(g,h,i)perylene	µg/kg	260		N/A
	Benzo(k)fluoranthene	µg/kg	182	J	21000
	Chrysene	µg/kg	371		210000
	Dibenzo(a,h)anthracene	µg/kg	54.7	J	210
	Fluoranthene	µg/kg	645		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	278		2100
	Phenanthrene	µg/kg	275		N/A
	Pyrene	µg/kg	492		17000000
VOCs	Acetone	µg/kg	42.9	J	630000000
FIN-SSA02					
PCB	Aroclor 1260	µg/kg	44.3		740
Metals	Antimony	mg/kg	0.65	J	410
	Arsenic	mg/kg	5		1.6
	Beryllium	mg/kg	0.64		2000
	Cadmium	mg/kg	0.91		800
	Chromium	mg/kg	17.5		180,000**
	Copper	mg/kg	42.1		41000
	Lead	mg/kg	215		800
	Mercury	mg/kg	0.74		34
	Nickel	mg/kg	12.1		20000
	Selenium	mg/kg	0.47	J	5100
	Silver	mg/kg	0.59		5100
	Zinc	mg/kg	508		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

FIN-SSA03					
Metals	Antimony (c)	mg/kg	3.2	J	410
	Arsenic (c)	mg/kg	12		1.6
	Beryllium	mg/kg	0.39		2000
	Cadmium	mg/kg	0.62		800
	Chromium	mg/kg	10.5		180,000**
	Copper	mg/kg	42.4		41000
	Lead (c)	mg/kg	455		800
	Mercury	mg/kg	0.068	J	34
	Nickel	mg/kg	22.1		20000
	Selenium (c)	mg/kg	1.3	J	5100
	Silver	mg/kg	1.1		5100
	Zinc	mg/kg	316		310000
SVOCs	Benzo(a)anthracene	µg/kg	812		2100
	Benzo(a)pyrene	µg/kg	1220		210
	Benzo(b)fluoranthene	µg/kg	2500		2100
	Benzo(g,h,i)perylene	µg/kg	1320		N/A
	Benzo(k)fluoranthene	µg/kg	700		21000
	Chrysene	µg/kg	1140		210000
	Dibenzo(a,h)anthracene	µg/kg	475		210
	Fluoranthene	µg/kg	790		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	1460		2100
	Phenanthrene	µg/kg	172	J	N/A
	Pyrene	µg/kg	722		17000000
FIN-SSA04					
Metals	Arsenic	mg/kg	5.8		1.6
	Beryllium	mg/kg	0.82		2000
	Cadmium	mg/kg	0.59		800
	Chromium	mg/kg	16.9		180,000**
	Copper	mg/kg	24		41000
	Lead	mg/kg	141		800
	Mercury	mg/kg	0.42		34
	Nickel	mg/kg	11.7		20000
	Silver	mg/kg	0.3	J	5100
	Zinc	mg/kg	315		310000
FIN-SSA05					
Metals	Arsenic	mg/kg	6.5		1.6
	Beryllium	mg/kg	0.82		2000
	Cadmium	mg/kg	0.97		800
	Chromium	mg/kg	18.7		180,000**
	Copper	mg/kg	24.2		41000
	Lead	mg/kg	159		800
	Mercury	mg/kg	0.27		34
	Nickel	mg/kg	17		20000
	Silver	mg/kg	0.29	J	5100
	Zinc	mg/kg	384		310000
FIN-SSA06					
PCB	Aroclor 1260	µg/kg	16.5	J	740
Metals	Arsenic (b)	mg/kg	4.7		1.6
	Beryllium	mg/kg	0.55		2000
	Cadmium	mg/kg	0.3		800
	Chromium	mg/kg	12.1		180,000**
	Copper	mg/kg	16.9		41000
	Lead (b)	mg/kg	51.1		800
	Mercury	mg/kg	0.07	J	34
	Nickel	mg/kg	11.9		20000
	Selenium (b)	mg/kg	1.4	J	5100
	Silver	mg/kg	0.062	J	5100
	Zinc	mg/kg	107		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSA07					
TPH	TPH (>C12-C28)	mg/kg	236		2500*
	TPH (>C28-C35)	mg/kg	188		5000*
	TPH (C6-C35)	mg/kg	424		N/A
Metals	Arsenic (b)	mg/kg	2.8	J	1.6
	Beryllium	mg/kg	0.26		2000
	Cadmium	mg/kg	0.35		800
	Chromium	mg/kg	7.5		180,000**
	Copper	mg/kg	17.2		41000
	Lead (b)	mg/kg	24.1		800
	Mercury	mg/kg	0.018	J	34
	Nickel	mg/kg	14.4		20000
	Selenium (b)	mg/kg	4.1	J	5100
	Silver	mg/kg	0.072	J	5100
	Thallium	mg/kg	0.54		0.14**
	Zinc	mg/kg	2610		310000
FIN-SSA08					
PCB	Aroclor 1260	µg/kg	10.3	J	740
Metals	Arsenic	mg/kg	4.9		1.6
	Beryllium	mg/kg	0.66		2000
	Cadmium	mg/kg	0.061	J	800
	Chromium	mg/kg	13.4		180,000**
	Copper	mg/kg	11.6		41000
	Lead	mg/kg	41.7		800
	Mercury	mg/kg	0.038	J	34
	Nickel	mg/kg	12.6		20000
	Silver	mg/kg	0.086	J	5100
	Zinc	mg/kg	97.2		310000
FIN-SSA09					
Metals	Arsenic (b)	mg/kg	5.7		1.6
	Beryllium	mg/kg	0.56		2000
	Cadmium	mg/kg	0.11	J	800
	Chromium	mg/kg	15.1		180,000**
	Copper	mg/kg	11.5		41000
	Lead (b)	mg/kg	32		800
	Mercury	mg/kg	0.042	J	34
	Nickel	mg/kg	11.6		20000
	Selenium (b)	mg/kg	1.7	J	5100
	Silver	mg/kg	0.094	J	5100
	Zinc	mg/kg	41.4		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSA10					
TPH	TPH (>C12-C28)	mg/kg	147		2500*
	TPH (>C28-C35)	mg/kg	176		5000*
	TPH (C6-C35)	mg/kg	323		N/A
Metals	Arsenic (b)	mg/kg	3.8	J	1.6
	Beryllium	mg/kg	0.37		2000
	Cadmium	mg/kg	0.26		800
	Chromium	mg/kg	10.7		180,000**
	Copper	mg/kg	9.5		41000
	Lead (b)	mg/kg	57.5		800
	Mercury	mg/kg	0.031	J	34
	Nickel	mg/kg	9.8		20000
	Selenium (b)	mg/kg	3	J	5100
	Zinc	mg/kg	50.6		310000
FIN-SSA11					
PCB	Aroclor 1260	µg/kg	20	J	740
Metals	Arsenic (b)	mg/kg	5.7		1.6
	Beryllium	mg/kg	0.5		2000
	Cadmium	mg/kg	0.35		800
	Chromium	mg/kg	14.2		180,000**
	Copper	mg/kg	11.6		41000
	Lead (b)	mg/kg	71		800
	Mercury	mg/kg	0.047	J	34
	Nickel	mg/kg	12.8		20000
	Selenium (b)	mg/kg	1.2	J	5100
	Silver	mg/kg	0.065	J	5100
	Zinc	mg/kg	87.1		310000
SVOCs	Benzo(a)anthracene	µg/kg	60	J	2100
	Benzo(a)pyrene	µg/kg	61.9	J	210
	Benzo(b)fluoranthene	µg/kg	113	J	2100
	Benzo(g,h,i)perylene	µg/kg	52.2	J	N/A
	Chrysene	µg/kg	73	J	210000
	Fluoranthene	µg/kg	144	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	51.9	J	2100
	Phenanthrene	µg/kg	78.9	J	N/A
	Pyrene	µg/kg	109	J	17000000
VOC	Acetone	µg/kg	24.7	J	630000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSB01					
Metals	Antimony	mg/kg	0.79	J	410
	Arsenic	mg/kg	5.8		1.6
	Beryllium	mg/kg	0.74		2000
	Cadmium	mg/kg	0.49		800
	Chromium	mg/kg	17.2		180,000**
	Copper	mg/kg	28		41000
	Lead	mg/kg	269		800
	Mercury	mg/kg	0.42		34
	Nickel	mg/kg	11.2		20000
	Selenium	mg/kg	0.44	J	5100
	Silver	mg/kg	0.32	J	5100
	Zinc	mg/kg	203		310000
FIN-SSB02					
TPH	TPH (>C12-C28) (b)	mg/kg	39.2		2500*
	TPH (C6-C35)	mg/kg	39.2		N/A
PCB	Aroclor 1260	µg/kg	14.6	J	740
Metals	Antimony	mg/kg	0.23	J	410
	Arsenic	mg/kg	5.6	J	1.6
	Beryllium	mg/kg	0.66		2000
	Cadmium	mg/kg	0.72	J	800
	Chromium	mg/kg	16.6		180,000**
	Copper	mg/kg	3980	J	41000
	Lead	mg/kg	291		800
	Mercury	mg/kg	0.39		34
	Nickel	mg/kg	16.5	J	20000
	Silver	mg/kg	0.47	J	5100
	Zinc	mg/kg	423	J	310000
SVOCs	Benzo(a)anthracene	µg/kg	165	J	2100
	Benzo(a)pyrene	µg/kg	188	J	210
	Benzo(b)fluoranthene	µg/kg	281		2100
	Benzo(g,h,i)perylene	µg/kg	134	J	N/A
	Benzo(k)fluoranthene	µg/kg	89.4	J	21000
	Chrysene	µg/kg	198	J	210000
	Fluoranthene	µg/kg	353		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	143	J	2100
	Phenanthrene	µg/kg	174	J	N/A
	Pyrene	µg/kg	275		17000000
FIN-SSB03					
Metals	Arsenic (a)	mg/kg	10.5		1.6
	Beryllium	mg/kg	0.2	J	2000
	Chromium	mg/kg	14.6		180,000**
	Copper	mg/kg	84.9		41000
	Lead (a)	mg/kg	272		800
	Mercury	mg/kg	0.1		34
	Nickel	mg/kg	91.2		20000
	Silver	mg/kg	0.31	J	5100
	Zinc	mg/kg	156		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSB04					
PCB	Aroclor 1260	µg/kg	17.3	J	740
Metals	Antimony	mg/kg	0.28	J	410
	Arsenic	mg/kg	5.9		1.6
	Beryllium	mg/kg	0.7		2000
	Cadmium	mg/kg	0.65		800
	Chromium	mg/kg	16.9		180,000**
	Copper	mg/kg	38.5		41000
	Lead	mg/kg	180		800
	Mercury	mg/kg	0.33		34
	Nickel	mg/kg	12.5		20000
	Selenium	mg/kg	0.36	J	5100
	Silver	mg/kg	0.35	J	5100
	Zinc	mg/kg	316		310000
SVOCs	Benzo(a)anthracene	µg/kg	130	J	2100
	Benzo(a)pyrene	µg/kg	136	J	210
	Benzo(b)fluoranthene	µg/kg	225		2100
	Benzo(g,h,i)perylene	µg/kg	101	J	N/A
	Benzo(k)fluoranthene	µg/kg	69.9	J	21000
	Chrysene	µg/kg	158	J	210000
	Fluoranthene	µg/kg	278		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	104	J	2100
	Phenanthrene	µg/kg	94.8	J	N/A
	Pyrene	µg/kg	205		17000000
FIN-SSB05					
PCB	Aroclor 1260	µg/kg	24		740
Metals	Antimony	mg/kg	0.34	J	410
	Arsenic	mg/kg	4.5		1.6
	Beryllium	mg/kg	0.5		2000
	Cadmium	mg/kg	0.8		800
	Chromium	mg/kg	13.7		180,000**
	Copper	mg/kg	29.1		41000
	Lead	mg/kg	144		800
	Mercury	mg/kg	0.25		34
	Nickel	mg/kg	10.6		20000
	Selenium	mg/kg	0.45	J	5100
	Silver	mg/kg	0.2	J	5100
	Zinc	mg/kg	266		310000
SVOCs	Benzo(a)anthracene	µg/kg	237		2100
	Benzo(a)pyrene	µg/kg	330		210
	Benzo(b)fluoranthene	µg/kg	545		2100
	Benzo(g,h,i)perylene	µg/kg	310		N/A
	Benzo(k)fluoranthene	µg/kg	151	J	21000
	Chrysene	µg/kg	310		210000
	Dibenzo(a,h)anthracene	µg/kg	65.2	J	210
	Fluoranthene	µg/kg	455		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	291		2100
	Phenanthrene	µg/kg	155	J	N/A
	Pyrene	µg/kg	358		17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSB06					
TPH	TPH (>C12-C28)	mg/kg	97.5		2500*
	TPH (>C28-C35)	mg/kg	60.7		5000*
	TPH (C6-C35)	mg/kg	158		N/A
PCB	Aroclor 1260	µg/kg	61.3		740
Metals	Arsenic (b)	mg/kg	4.1		1.6
	Beryllium	mg/kg	0.22	J	2000
	Cadmium	mg/kg	1.7		800
	Chromium	mg/kg	21.9		180,000**
	Copper	mg/kg	24.3		41000
	Lead (b)	mg/kg	46.2		800
	Mercury	mg/kg	0.025	J	34
	Nickel	mg/kg	16.5		20000
	Selenium (b)	mg/kg	2.5	J	5100
	Silver	mg/kg	0.13	J	5100
	Zinc	mg/kg	423		310000
FIN-SSB07					
TPH	TPH (>C12-C28)	mg/kg	114		2500*
	TPH (>C28-C35)	mg/kg	96.9		5000*
	TPH (C6-C35)	mg/kg	211		N/A
Metals	Antimony (a)	mg/kg	2.8	J	410
	Arsenic (a)	mg/kg	4.5	J	1.6
	Beryllium	mg/kg	0.2	J	2000
	Cadmium	mg/kg	0.62		800
	Chromium	mg/kg	15.5		180,000**
	Copper	mg/kg	41.7		41000
	Lead (a)	mg/kg	34.6		800
	Mercury	mg/kg	0.039	J	34
	Nickel	mg/kg	21.6		20000
	Selenium (a)	mg/kg	5.4	J	5100
	Silver	mg/kg	0.12	J	5100
	Zinc	mg/kg	377		310000
FIN-SSB08					
PCB	Aroclor 1260	µg/kg	221		740
Metals	Arsenic	mg/kg	4.9		1.6
	Beryllium	mg/kg	0.45		2000
	Cadmium	mg/kg	0.21		800
	Chromium	mg/kg	11.2		180,000**
	Copper	mg/kg	18.5		41000
	Lead	mg/kg	65.6		800
	Mercury	mg/kg	0.042	J	34
	Nickel	mg/kg	11.7		20000
	Selenium	mg/kg	0.17	J	5100
	Silver	mg/kg	0.19	J	5100
	Zinc	mg/kg	102		310000
SVOCs	Benzo(a)anthracene	µg/kg	704		2100
	Benzo(a)pyrene	µg/kg	911		210
	Benzo(b)fluoranthene	µg/kg	1850		2100
	Benzo(g,h,i)perylene	µg/kg	834		N/A
	Benzo(k)fluoranthene	µg/kg	561		21000
	Chrysene	µg/kg	921		210000
	Dibenzo(a,h)anthracene	µg/kg	218		210
	Fluoranthene	µg/kg	752		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	837		2100
	Phenanthrene	µg/kg	174	J	N/A
VOCs	Pyrene	µg/kg	731		17000000
	Acetone	µg/kg	125		630000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

FIN-SSB09					
TPH	TPH (>C12-C28)	mg/kg	81.6		2500*
	TPH (>C28-C35)	mg/kg	93.5		5000*
	TPH (C6-C35)	mg/kg	175		N/A
Metals	Arsenic (b)	mg/kg	3.6		1.6
	Beryllium	mg/kg	0.3		2000
	Cadmium	mg/kg	0.77		800
	Chromium	mg/kg	6.5		180,000**
	Copper	mg/kg	7.6		41000
	Lead (b)	mg/kg	57.8		800
	Mercury	mg/kg	0.035	J	34
	Nickel	mg/kg	6.8		20000
	Selenium (b)	mg/kg	2.5	J	5100
	Zinc	mg/kg	145		310000
FIN-SSB10					
TPH	TPH (>C12-C28)	mg/kg	18.7	J	2500*
	TPH (C6-C35)	mg/kg	18.7	J	N/A
Metals	Arsenic (b)	mg/kg	3.7		1.6
	Beryllium	mg/kg	0.41		2000
	Cadmium	mg/kg	2.6		800
	Chromium	mg/kg	11.2		180,000**
	Copper	mg/kg	14.5		41000
	Lead (b)	mg/kg	105		800
	Mercury	mg/kg	0.088		34
	Nickel	mg/kg	8.1		20000
	Selenium (b)	mg/kg	1.9	J	5100
	Zinc	mg/kg	565		310000
FIN-SSB11					
TPH	TPH (>C12-C28)	mg/kg	1020		2500*
	TPH (>C28-C35)	mg/kg	694		5000*
	TPH (C6-C35)	mg/kg	1720		N/A
Metals	Beryllium	mg/kg	0.059	J	2000
	Cadmium	mg/kg	1.3		800
	Chromium	mg/kg	2.6		180,000**
	Copper	mg/kg	3.8		41000
	Lead (b)	mg/kg	79.2		800
	Mercury	mg/kg	0.024	J	34
	Nickel	mg/kg	3.7		20000
	Selenium (b)	mg/kg	6.7	J	5100
	Zinc	mg/kg	328		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSB12					
PCB	Aroclor 1260	µg/kg	90.1		740
Metals	Antimony	mg/kg	0.58	J	410
	Arsenic	mg/kg	5.7		1.6
	Beryllium	mg/kg	0.5		2000
	Cadmium	mg/kg	1.2		800
	Chromium	mg/kg	22.2		180,000**
	Copper	mg/kg	36.8		41000
	Lead	mg/kg	141		800
	Mercury	mg/kg	0.11		34
	Nickel	mg/kg	18.1		20000
	Selenium	mg/kg	0.8	J	5100
	Silver	mg/kg	0.2	J	5100
	Zinc	mg/kg	606		310000
FIN-SSB13					
TPH	TPH (>C12-C28)	mg/kg	47.3		2500*
	TPH (>C28-C35)	mg/kg	43.7		5000*
	TPH (C6-C35)	mg/kg	91		N/A
PCB	Aroclor 1260	µg/kg	40.4		740
Metals	Arsenic (b)	mg/kg	4.7		1.6
	Beryllium	mg/kg	0.19	J	2000
	Cadmium	mg/kg	0.5		800
	Chromium	mg/kg	10.1		180,000**
	Copper	mg/kg	30.2		41000
	Lead (b)	mg/kg	43		800
	Nickel	mg/kg	11.7		20000
	Selenium (b)	mg/kg	2.2	J	5100
	Silver	mg/kg	0.065	J	5100
	Zinc	mg/kg	99.5		310000
FIN-SSB14					
Metals	Arsenic (b)	mg/kg	2.3	J	1.6
	Beryllium	mg/kg	0.3		2000
	Cadmium	mg/kg	0.45		800
	Chromium	mg/kg	7.8		180,000**
	Copper	mg/kg	13.2		41000
	Lead (b)	mg/kg	44.1		800
	Nickel	mg/kg	14.3		20000
	Selenium (b)	mg/kg	7.2	J	5100
	Zinc	mg/kg	39.2		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC01					
PCB	Aroclor 1260	µg/kg	19.6		740
Metals	Antimony	mg/kg	0.44	J	410
	Arsenic	mg/kg	3.7		1.6
	Beryllium	mg/kg	0.31		2000
	Cadmium	mg/kg	0.32		800
	Chromium	mg/kg	11.6		180,000**
	Copper	mg/kg	25.7		41000
	Lead	mg/kg	95.4		800
	Mercury	mg/kg	0.075	J	34
	Nickel	mg/kg	11.3		20000
	Selenium	mg/kg	0.36	J	5100
	Silver	mg/kg	0.1	J	5100
	Zinc	mg/kg	930		310000
SVOCs	Benzo(a)anthracene	µg/kg	170	J	2100
	Benzo(a)pyrene	µg/kg	293		210
	Benzo(b)fluoranthene	µg/kg	459		2100
	Benzo(g,h,i)perylene	µg/kg	255		N/A
	Benzo(k)fluoranthene	µg/kg	132	J	21000
	Chrysene	µg/kg	269		210000
	Dibenzo(a,h)anthracene	µg/kg	53.1	J	210
	Fluoranthene	µg/kg	309		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	261		2100
	Phenanthrene	µg/kg	68.5	J	N/A
	Pyrene	µg/kg	233		17000000
FIN-SSC02					
PCB	Aroclor 1260	µg/kg	47.2		740
Metals	Antimony (a)	mg/kg	1.2	J	410
	Arsenic (a)	mg/kg	6.4		1.6
	Beryllium	mg/kg	0.44		2000
	Cadmium	mg/kg	0.92		800
	Chromium	mg/kg	19.2		180,000**
	Copper	mg/kg	52.1		41000
	Lead (a)	mg/kg	126		800
	Mercury	mg/kg	0.15		34
	Nickel	mg/kg	22.1		20000
	Selenium (a)	mg/kg	1.3	J	5100
	Silver	mg/kg	0.43	J	5100
	Zinc	mg/kg	1210		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC03					
PCB	Aroclor 1260	µg/kg	94		740
Metals	Antimony (c)	mg/kg	1	J	410
	Arsenic (c)	mg/kg	6	J	1.6
	Beryllium	mg/kg	0.56		2000
	Cadmium	mg/kg	0.98	J	800
	Chromium	mg/kg	24		180,000**
	Copper	mg/kg	53.5	J	41000
	Lead (c)	mg/kg	176		800
	Mercury	mg/kg	0.098		34
	Nickel	mg/kg	27.6	J	20000
	Selenium (c)	mg/kg	2.1	J	5100
	Silver	mg/kg	0.28	J	5100
	Zinc	mg/kg	866	J	310000
SVOCs	Benzo(a)anthracene	µg/kg	289		2100
	Benzo(a)pyrene	µg/kg	320		210
	Benzo(b)fluoranthene	µg/kg	593		2100
	Benzo(g,h,i)perylene	µg/kg	253		N/A
	Benzo(k)fluoranthene	µg/kg	183	J	21000
	Chrysene	µg/kg	410		210000
	Dibenzo(a,h)anthracene	µg/kg	56	J	210
	Fluoranthene	µg/kg	650		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	255		2100
	Phenanthrene	µg/kg	192	J	N/A
	Pyrene	µg/kg	522		17000000
FIN-SSC04					
PCB	Aroclor 1260	µg/kg	54.9		740
Metals	Antimony (a)	mg/kg	0.95	J	410
	Arsenic (a)	mg/kg	8.3		1.6
	Beryllium	mg/kg	0.54		2000
	Cadmium	mg/kg	0.88		800
	Chromium	mg/kg	16.3		180,000**
	Copper	mg/kg	38		41000
	Lead (a)	mg/kg	213		800
	Mercury	mg/kg	0.14		34
	Nickel	mg/kg	16.2		20000
	Selenium (a)	mg/kg	1.3	J	5100
	Silver	mg/kg	0.39	J	5100
	Zinc	mg/kg	448		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC05					
TPH	TPH (>C12-C28)	mg/kg	139	J	2500*
	TPH (>C28-C35)	mg/kg	149		5000*
	TPH (C6-C35)	mg/kg	288		N/A
PCB	Aroclor 1260	µg/kg	33		740
Metals	Antimony (a)	mg/kg	3.5	J	410
	Arsenic (a)	mg/kg	3.4	J	1.6
	Beryllium	mg/kg	0.13	J	2000
	Cadmium	mg/kg	1.3		800
	Chromium	mg/kg	15.9		180,000**
	Copper	mg/kg	42.6		41000
	Lead (a)	mg/kg	82.5		800
	Mercury	mg/kg	0.097		34
	Nickel	mg/kg	25.1		20000
	Selenium (a)	mg/kg	3.3	J	5100
	Silver	mg/kg	0.24	J	5100
	Zinc	mg/kg	142		310000
SVOCs	Acenaphthene	µg/kg	49.5	J	33000000
	Anthracene	µg/kg	126	J	170000000
	Benzo(a)anthracene	µg/kg	520		2100
	Benzo(a)pyrene	µg/kg	543		210
	Benzo(b)fluoranthene	µg/kg	847		2100
	Benzo(g,h,i)perylene	µg/kg	436		N/A
	Benzo(k)fluoranthene	µg/kg	251		21000
	Carbazole	µg/kg	117	J	
	Chrysene	µg/kg	609		210000
	Dibenzo(a,h)anthracene	µg/kg	75.7	J	210
	Fluoranthene	µg/kg	1370		22000000
	Fluorene	µg/kg	37.4	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	438		2100
	Phenanthrene	µg/kg	665		N/A
	Pyrene	µg/kg	1020		17000000
FIN-SSC06					
TPH	TPH (>C12-C28)	mg/kg	698		2500*
	TPH (>C28-C35)	mg/kg	659		5000*
	TPH (C6-C35)	mg/kg	1360		N/A
PCB	Aroclor 1260	µg/kg	73.5		740
Metals	Antimony (a)	mg/kg	1.2	J	410
	Arsenic (a)	mg/kg	3.2		1.6
	Beryllium	mg/kg	0.2	J	2000
	Cadmium	mg/kg	0.4		800
	Chromium	mg/kg	23.3		180,000**
	Copper	mg/kg	27.8		41000
	Lead (a)	mg/kg	42.8		800
	Mercury	mg/kg	2.8		34
	Nickel	mg/kg	17.2		20000
	Selenium (a)	mg/kg	1.6	J	5100
	Silver	mg/kg	0.15	J	5100
	Zinc	mg/kg	248		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC07					
Metals	Beryllium	mg/kg	0.23	J	2000
	Cadmium	mg/kg	0.54		800
	Chromium	mg/kg	4.5		180,000**
	Copper	mg/kg	7.7		41000
	Lead (a)	mg/kg	16.1		800
	Mercury	mg/kg	0.028	J	34
	Nickel	mg/kg	8.5		20000
	Selenium (a)	mg/kg	1.8	J	5100
	Zinc	mg/kg	88.4		310000
SVOCs	Benzo(a)anthracene	µg/kg	107	J	2100
	Benzo(a)pyrene	µg/kg	92.4	J	210
	Benzo(b)fluoranthene	µg/kg	172	J	2100
	Benzo(g,h,i)perylene	µg/kg	49.8	J	N/A
	Benzo(k)fluoranthene	µg/kg	58.5	J	21000
	Chrysene	µg/kg	119	J	210000
	bis(2-Ethylhexyl)phthalate	µg/kg	1180		120000
	Fluoranthene	µg/kg	69.4	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	45.1	J	2100
	Pyrene	µg/kg	61.8	J	17000000
FIN-SSC08					
PCB	Aroclor 1260	µg/kg	612		740
Metals	Arsenic (b)	mg/kg	5.1		1.6
	Beryllium	mg/kg	0.51		2000
	Cadmium	mg/kg	0.51		800
	Chromium	mg/kg	11.1		180,000**
	Copper	mg/kg	12.2		41000
	Lead (b)	mg/kg	45.3		800
	Mercury	mg/kg	0.024	J	34
	Nickel	mg/kg	12.7		20000
	Selenium (b)	mg/kg	0.54	J	5100
	Silver	mg/kg	0.062	J	5100
	Zinc	mg/kg	112		310000
FIN-SSC09					
PCBs	Aroclor 1260	µg/kg	35.3	J	740
Metals	Arsenic	mg/kg	7.8		1.6
	Beryllium	mg/kg	0.8		2000
	Cadmium	mg/kg	0.93		800
	Chromium	mg/kg	22.3		180,000**
	Copper	mg/kg	46.6		41000
	Lead	mg/kg	56.4		800
	Mercury	mg/kg	0.18		34
	Nickel	mg/kg	22.3		20000
	Selenium	mg/kg	0.59	J	5100
	Silver	mg/kg	0.15	J	5100
	Zinc	mg/kg	197		310000
SVOCs	Benzo(a)anthracene	µg/kg	83.3	J	2100
	Benzo(a)pyrene	µg/kg	97.2	J	210
	Benzo(b)fluoranthene	µg/kg	160	J	2100
	Benzo(g,h,i)perylene	µg/kg	56.1	J	N/A
	Benzo(k)fluoranthene	µg/kg	58.8	J	21000
	Chrysene	µg/kg	105	J	210000
	Fluoranthene	µg/kg	111	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	58.9	J	2100
	Phenanthrene	µg/kg	60.5	J	N/A
	Pyrene	µg/kg	117	J	17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC10					
Metals	Arsenic	mg/kg	6.1		1.6
	Beryllium	mg/kg	0.91		2000
	Cadmium	mg/kg	0.32		800
	Chromium	mg/kg	18.6		180,000**
	Copper	mg/kg	21.6		41000
	Lead	mg/kg	53.5		800
	Mercury	mg/kg	0.14		34
	Nickel	mg/kg	15.3		20000
	Silver	mg/kg	0.13	J	5100
	Zinc	mg/kg	145		310000
FIN-SSC11					
PCB	Aroclor 1260	µg/kg	118		740
Metals	Arsenic	mg/kg	6.5		1.6
	Beryllium	mg/kg	0.85		2000
	Cadmium	mg/kg	0.41		800
	Chromium	mg/kg	19		180,000**
	Copper	mg/kg	22.6		41000
	Lead	mg/kg	59.6		800
	Mercury	mg/kg	0.086		34
	Nickel	mg/kg	16.5		20000
	Selenium	mg/kg	0.39	J	5100
	Silver	mg/kg	0.13	J	5100
	Zinc	mg/kg	159		310000
SVOCs	Benzo(a)anthracene	µg/kg	44.2	J	2100
	Benzo(a)pyrene	µg/kg	52.6	J	210
	Benzo(g,h,i)perylene	µg/kg	41.1	J	N/A
	Chrysene	µg/kg	58	J	210000
	Fluoranthene	µg/kg	91.5	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	40.8	J	2100
	Phenanthrene	µg/kg	38.5	J	N/A
	Pyrene	µg/kg	81.2	J	17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC12					
PCB	Aroclor 1248	µg/kg	1160		740
	Aroclor 1260	µg/kg	136	J	740
Metals	Antimony (b)	mg/kg	0.68	J	410
	Arsenic (b)	mg/kg	5.7		1.6
	Beryllium	mg/kg	0.49		2000
	Cadmium	mg/kg	0.35		800
	Chromium	mg/kg	18.3		180,000**
	Copper	mg/kg	44.8		41000
	Lead (b)	mg/kg	60.6		800
	Mercury	mg/kg	0.053	J	34
	Nickel	mg/kg	35.9		20000
	Selenium (b)	mg/kg	0.36	J	5100
	Silver	mg/kg	0.14	J	5100
	Zinc	mg/kg	103		310000
SVOCs	Anthracene	µg/kg	71.8	J	170000000
	Benzo(a)anthracene	µg/kg	448		2100
	Benzo(a)pyrene	µg/kg	532		210
	Benzo(b)fluoranthene	µg/kg	865		2100
	Benzo(g,h,i)perylene	µg/kg	465		N/A
	Benzo(k)fluoranthene	µg/kg	288		21000
	Carbazole	µg/kg	46	J	N/A
	Chrysene	µg/kg	554		210000
	Dibenzo(a,h)anthracene	µg/kg	107	J	210
	Fluoranthene	µg/kg	833		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	477		2100
	Phenanthrene	µg/kg	316		N/A
	Pyrene	µg/kg	745		17000000
FIN-SSC13					
Metals	Arsenic	mg/kg	4.1		1.6
	Beryllium	mg/kg	0.53		2000
	Cadmium	mg/kg	0.13	J	800
	Chromium	mg/kg	11.9		180,000**
	Copper	mg/kg	10.8		41000
	Lead	mg/kg	23.5		800
	Mercury	mg/kg	0.022	J	34
	Nickel	mg/kg	12.8		20000
	Zinc	mg/kg	46		310000
FIN-SSC14					
TPH	TPH (>C12-C28)	mg/kg	7890		2500*
	TPH (>C28-C35)	mg/kg	4250		5000*
	TPH (C6-C35)	mg/kg	12100		N/A
PCB	Aroclor 1260	µg/kg	606		740
Metals	Antimony (b)	mg/kg	3.7	J	410
	Arsenic (b)	mg/kg	4.2		1.6
	Beryllium	mg/kg	0.19	J	2000
	Cadmium	mg/kg	3.7		800
	Chromium	mg/kg	194		180,000**
	Copper	mg/kg	144		41000
	Lead	mg/kg	832		800
	Mercury	mg/kg	0.12		34
	Nickel	mg/kg	21.3		20000
	Selenium (b)	mg/kg	1.1	J	5100
	Silver	mg/kg	0.64		5100
	Zinc	mg/kg	2140		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSC15					
Herbicides	Metachloropiperazine	µg/kg	33000	J	620000
Metals	Arsenic	mg/kg	11.5		1.6
	Beryllium	mg/kg	0.81		2000
	Cadmium	mg/kg	0.13	J	800
	Chromium	mg/kg	15.5		180,000**
	Copper	mg/kg	17.8		41000
	Lead	mg/kg	61.3		800
	Mercury	mg/kg	0.16		34
	Nickel	mg/kg	17.9		20000
	Silver	mg/kg	0.11	J	5100
	Zinc	mg/kg	97		310000
SVOCs	Benzo(a)anthracene	µg/kg	52.2	J	2100
	Benzo(a)pyrene	µg/kg	60.3	J	210
	Benzo(b)fluoranthene	µg/kg	90.2	J	2100
	Benzo(g,h,i)perylene	µg/kg	51.7	J	N/A
	Chrysene	µg/kg	60	J	210000
	Fluoranthene	µg/kg	105	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	39.8	J	2100
	Phenanthrene	µg/kg	43.6	J	N/A
	Pyrene	µg/kg	97	J	17000000
FIN-SSD01					
PCB	Aroclor 1260	µg/kg	11.6	J	740
Metals	Antimony (a)	mg/kg	1	J	410
	Arsenic (a)	mg/kg	4.9		1.6
	Beryllium	mg/kg	0.19	J	2000
	Cadmium	mg/kg	0.49		800
	Chromium	mg/kg	24.6		180,000**
	Copper	mg/kg	34.3		41000
	Lead (a)	mg/kg	38.4		800
	Mercury	mg/kg	0.024	J	34
	Nickel	mg/kg	18.7		20000
	Selenium (a)	mg/kg	0.66	J	5100
	Silver	mg/kg	0.081	J	5100
	Zinc	mg/kg	737		310000
FIN-SSD02					
Metals	Arsenic	mg/kg	3	J	1.6
	Beryllium	mg/kg	0.12	J	2000
	Chromium	mg/kg	79		180,000**
	Copper	mg/kg	31.3	J	41000
	Lead	mg/kg	16.1		800
	Nickel	mg/kg	26.5	J	20000
	Silver	mg/kg	0.081	J	5100
	Zinc	mg/kg	2260	J	310000
SVOCs	Di-n-octyl phthalate	µg/kg	256	J	N/A
	bis(2-Ethylhexyl)phthalate	µg/kg	399		120000
	Fluoranthene	µg/kg	35.4	J	22000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSD03					
TPH	TPH (>C12-C28)	mg/kg	1400		2500*
	TPH (>C28-C35)	mg/kg	2010		5000*
	TPH (C6-C35)	mg/kg	3420		N/A
PCB	Aroclor 1260	µg/kg	141	J	740
Metals	Antimony	mg/kg	1.4		410
	Arsenic	mg/kg	11.5		1.6
	Beryllium	mg/kg	0.22	J	2000
	Cadmium	mg/kg	4.6		800
	Chromium	mg/kg	443		180,000**
	Copper	mg/kg	455		41000
	Lead	mg/kg	118		800
	Mercury	mg/kg	0.035	J	34
	Nickel	mg/kg	396		20000
	Selenium	mg/kg	0.78	J	5100
	Silver	mg/kg	0.78		5100
	Zinc	mg/kg	2560		310000
FIN-SSD04					
TPH	TPH (>C12-C28)	mg/kg	38100	J	2500*
	TPH (>C28-C35)	mg/kg	39500		5000*
	TPH (C6-C35)	mg/kg	77600		N/A
PCB	Aroclor 1260 (d)	µg/kg	767	J	740
Metals	Beryllium	mg/kg	0.5		2000
	Chromium	mg/kg	342		180,000**
	Copper	mg/kg	320		41000
	Mercury	mg/kg	0.034	J	34
	Nickel	mg/kg	299		20000
	Silver	mg/kg	0.78		5100
	Zinc	mg/kg	2140		310000
FIN-SSD05					
TPH	TPH (>C12-C28)	mg/kg	44200		2500*
	TPH (C6-C35)	mg/kg	44200		N/A
PCB	Aroclor 1260 (d)	µg/kg	16400		740
Metals	Arsenic (a)	mg/kg	4.1		1.6
	Beryllium	mg/kg	0.25		2000
	Cadmium	mg/kg	0.92		800
	Chromium	mg/kg	119		180,000**
	Copper	mg/kg	63.5		41000
	Lead (a)	mg/kg	73.4		800
	Mercury	mg/kg	0.038	J	34
	Nickel	mg/kg	66.1		20000
	Selenium (a)	mg/kg	1.4	J	5100
	Silver	mg/kg	0.42	J	5100
	Zinc	mg/kg	1120		310000
SVOC	bis(2-Ethylhexyl)phthalate	µg/kg	6020	J	120000
VOCs	Acetone	µg/kg	79.3	J	630000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSD06					
TPH	TPH (>C12-C28)	mg/kg	181		2500*
	TPH (>C28-C35)	mg/kg	272		5000*
	TPH (C6-C35)	mg/kg	453		N/A
Metals	Arsenic (a)	mg/kg	6.3		1.6
	Beryllium	mg/kg	0.27		2000
	Cadmium	mg/kg	1.2		800
	Chromium	mg/kg	107		180,000**
	Copper	mg/kg	105		41000
	Lead (a)	mg/kg	159		800
	Mercury	mg/kg	0.053	J	34
	Nickel	mg/kg	78.7		20000
	Silver	mg/kg	0.26	J	5100
	Zinc	mg/kg	1320		310000
FIN-SSD07					
PCB	Aroclor 1260	µg/kg	759		740
Metals	Antimony (a)	mg/kg	1.1	J	410
	Arsenic (a)	mg/kg	6.9		1.6
	Beryllium	mg/kg	0.27		2000
	Cadmium	mg/kg	1		800
	Chromium	mg/kg	57.9		180,000**
	Copper	mg/kg	55.7		41000
	Lead (a)	mg/kg	106		800
	Mercury	mg/kg	0.051	J	34
	Nickel	mg/kg	46.5		20000
	Selenium (a)	mg/kg	2.5	J	5100
	Silver	mg/kg	0.32	J	5100
	Zinc	mg/kg	479		310000
FIN-SSD08					
PCB	Aroclor 1254 (c)	µg/kg	425	J	740
	Aroclor 1260 (c)	µg/kg	100	J	740
Metals	Arsenic	mg/kg	3.8		1.6
	Beryllium	mg/kg	0.59		2000
	Cadmium	mg/kg	0.18	J	800
	Chromium	mg/kg	11.3		180,000**
	Copper	mg/kg	15.8		41000
	Lead	mg/kg	27.1		800
	Mercury	mg/kg	0.075	J	34
	Nickel	mg/kg	14.2		20000
	Zinc	mg/kg	103		310000
FIN-SSD09					
PCB	Aroclor 1260	µg/kg	222		740
Metals	Arsenic	mg/kg	4		1.6
	Beryllium	mg/kg	0.55		2000
	Cadmium	mg/kg	0.41		800
	Chromium	mg/kg	10.5		180,000**
	Copper	mg/kg	15.2		41000
	Lead	mg/kg	95.9		800
	Mercury	mg/kg	0.14		34
	Nickel	mg/kg	10.3		20000
	Silver	mg/kg	0.069	J	5100
	Zinc	mg/kg	121		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSD10					
TPH	TPH (>C12-C28)	mg/kg	11000		2500*
	TPH (>C28-C35)	mg/kg	12800		5000*
	TPH (C6-C35)	mg/kg	23800		N/A
PCB	Aroclor 1260	µg/kg	1640		740
Metals	Antimony (b)	mg/kg	4		410
	Arsenic (b)	mg/kg	19.7		1.6
	Beryllium	mg/kg	0.26		2000
	Cadmium (b)	mg/kg	23.1		800
	Chromium	mg/kg	280		180,000**
	Copper	mg/kg	245		41000
	Lead	mg/kg	2560		800
	Mercury	mg/kg	0.17		34
	Nickel	mg/kg	68.8		20000
	Silver	mg/kg	1.9		5100
	Zinc	mg/kg	5430		310000
SVOCs	Acenaphthylene	µg/kg	1890	J	N/A
	Anthracene	µg/kg	2420	J	170000000
	Benzo(a)anthracene	µg/kg	2130	J	2100
	Benzo(a)pyrene	µg/kg	4270		210
	Benzo(b)fluoranthene	µg/kg	9480		2100
	Benzo(g,h,i)perylene	µg/kg	8240		N/A
	Benzo(k)fluoranthene	µg/kg	3040	J	21000
	Chrysene	µg/kg	4790		210000
	Dibenzo(a,h)anthracene	µg/kg	1690	J	210
	Di-n-butyl phthalate	µg/kg	2910	J	62000000
	bis(2-Ethylhexyl)phthalate	µg/kg	11300		120000
	Fluoranthene	µg/kg	3460	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	7570		2100
	Phenanthrene	µg/kg	1240	J	N/A
	Pyrene	µg/kg	3560	J	17000000
VOCs	Acetone	µg/kg	3230		630000000
	Benzene	µg/kg	6.9	J	5400
	2-Hexanone	µg/kg	191		180000
	4-Methyl-2-pentanone	µg/kg	112		53000000
	Methyl ethyl ketone	µg/kg	729		200000000
	Toluene	µg/kg	5.2	J	45000000
FIN-SSD11					
TPH	TPH (C6-C12)	mg/kg	44.6	J	2500*
	TPH (>C12-C28)	mg/kg	33500		5000*
	TPH (>C28-C35)	mg/kg	22000		500*
	TPH (C6-C35)	mg/kg	55500		N/A
PCB	Aroclor 1260	µg/kg	929		740
Metals	Antimony (b)	mg/kg	5		410
	Arsenic (b)	mg/kg	14.3		1.6
	Beryllium	mg/kg	0.23		2000
	Cadmium	mg/kg	10		800
	Chromium	mg/kg	672		180,000**
	Copper	mg/kg	386		41000
	Lead	mg/kg	4310		800
	Mercury	mg/kg	0.14		34
	Nickel	mg/kg	51.3		20000
	Selenium (b)	mg/kg	0.79	J	5100
	Silver	mg/kg	1.1		5100
	Zinc	mg/kg	1680		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSD12					
TPH	TPH (>C12-C28)	mg/kg	34200		2500*
	TPH (>C28-C35)	mg/kg	17800		5000*
	TPH (C6-C35)	mg/kg	52000		N/A
PCB	Aroclor 1254 (c)	µg/kg	18000	J	740
	Aroclor 1260 (c)	µg/kg	6250	J	740
Metals	Antimony (b)	mg/kg	1.6	J	410
	Arsenic (b)	mg/kg	7.8		1.6
	Beryllium	mg/kg	0.26		2000
	Cadmium	mg/kg	5		800
	Chromium	mg/kg	41.1		180,000**
	Copper	mg/kg	117		41000
	Lead	mg/kg	351		800
	Mercury	mg/kg	0.057	J	34
	Nickel	mg/kg	24.2		20000
	Selenium (b)	mg/kg	2.1	J	5100
	Silver	mg/kg	0.81		5100
	Zinc	mg/kg	1300		310000
FIN-SSD13					
TPH	TPH (>C12-C28)	mg/kg	7890		2500*
	TPH (>C28-C35)	mg/kg	8920		5000*
	TPH (C6-C35)	mg/kg	16800		N/A
PCB	Aroclor 1260	µg/kg	662		740
Metals	Antimony (b)	mg/kg	0.72	J	410
	Arsenic (b)	mg/kg	7.8		1.6
	Beryllium	mg/kg	0.092	J	2000
	Cadmium	mg/kg	2.5		800
	Chromium	mg/kg	28.8		180,000**
	Copper	mg/kg	74.1		41000
	Lead (b)	mg/kg	153		800
	Mercury	mg/kg	0.06	J	34
	Nickel	mg/kg	16.3		20000
	Selenium (b)	mg/kg	0.42	J	5100
	Silver	mg/kg	0.24	J	5100
	Zinc	mg/kg	601		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSD14					
TPH	TPH (>C12-C28)	mg/kg	3380		2500*
	TPH (>C28-C35)	mg/kg	3510		5000*
	TPH (C6-C35)	mg/kg	6890		N/A
PCB	Aroclor 1260	µg/kg	1810		740
Metals	Antimony (b)	mg/kg	6.7		410
	Arsenic (b)	mg/kg	9.8		1.6
	Beryllium	mg/kg	0.26		2000
	Cadmium (b)	mg/kg	16.4		800
	Chromium	mg/kg	526		180,000**
	Copper	mg/kg	344		41000
	Lead	mg/kg	1700		800
	Mercury	mg/kg	0.1		34
	Nickel	mg/kg	237		20000
	Selenium (b)	mg/kg	1.1	J	5100
	Silver	mg/kg	2.1		5100
	Zinc (e)	mg/kg	6200	C	310000
SVOCs	Benzo(a)anthracene	µg/kg	210	J	2100
	Benzo(a)pyrene	µg/kg	196	J	210
	Benzo(b)fluoranthene	µg/kg	580	J	2100
	Benzo(g,h,i)perylene	µg/kg	214	J	N/A
	Benzo(k)fluoranthene	µg/kg	152	J	21000
	Butyl benzyl phthalate	µg/kg	379	J	910000
	Chrysene	µg/kg	515	J	210000
	Di-n-butyl phthalate	µg/kg	649	J	62000000
	Di-n-octyl phthalate	µg/kg	405	J	N/A
	bis(2-Ethylhexyl)phthalate	µg/kg	8240		120000
	Fluoranthene	µg/kg	622	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	213	J	2100
	Phenanthrene	µg/kg	327	J	N/A
	Pyrene	µg/kg	497	J	17000000
VOCs	Benzene	µg/kg	2	J	5400
FIN-SSD15					
Metals	Antimony (b)	mg/kg	3		410
	Arsenic (b)	mg/kg	70		1.6
	Beryllium	mg/kg	1.7		2000
	Cadmium	mg/kg	2		800
	Chromium	mg/kg	11.4		180,000**
	Copper	mg/kg	70.4		41000
	Lead (b)	mg/kg	1180		800
	Mercury	mg/kg	0.054	J	34
	Nickel	mg/kg	16.1		20000
	Silver	mg/kg	5.1		5100
	Zinc	mg/kg	3410		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSD16					
Metals	Arsenic (b)	mg/kg	6.7		1.6
	Beryllium	mg/kg	0.64		2000
	Cadmium	mg/kg	0.16	J	800
	Chromium	mg/kg	11.3		180,000**
	Copper	mg/kg	16.3		41000
	Lead (b)	mg/kg	77.5		800
	Mercury	mg/kg	0.24		34
	Nickel	mg/kg	10.4		20000
	Selenium (b)	mg/kg	0.55	J	5100
	Silver	mg/kg	0.1	J	5100
	Zinc	mg/kg	129		310000
FIN-SSE04					
TPH	TPH (>C12-C28)	mg/kg	262		2500*
	TPH (>C28-C35)	mg/kg	136		5000*
	TPH (C6-C35)	mg/kg	397		N/A
PCB	Aroclor 1260	µg/kg	363		740
Metals	Antimony (a)	mg/kg	2.4	J	410
	Arsenic (a)	mg/kg	6.3		1.6
	Beryllium	mg/kg	0.24	J	2000
	Cadmium	mg/kg	1.9		800
	Chromium	mg/kg	62.1		180,000**
	Copper	mg/kg	113		41000
	Lead (a)	mg/kg	112		800
	Mercury	mg/kg	0.075	J	34
	Nickel	mg/kg	43.7		20000
	Selenium (a)	mg/kg	2.4	J	5100
	Silver	mg/kg	0.51	J	5100
	Zinc	mg/kg	1160		310000
SVOCs	Benzo(a)anthracene	µg/kg	61.7	J	2100
	Benzo(a)pyrene	µg/kg	80	J	210
	Benzo(b)fluoranthene	µg/kg	181	J	2100
	Benzo(g,h,i)perylene	µg/kg	93.6	J	N/A
	Benzo(k)fluoranthene	µg/kg	53.1	J	21000
	Chrysene	µg/kg	98	J	210000
	bis(2-Ethylhexyl)phthalate	µg/kg	653		120000
	Fluoranthene	µg/kg	125	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	85.3	J	2100
	Phenanthrene	µg/kg	47	J	N/A
	Pyrene	µg/kg	100	J	17000000
FIN-SSE05					
TPH	TPH (>C12-C28)	mg/kg	88.4		2500*
	TPH (>C28-C35)	mg/kg	144		5000*
	TPH (C6-C35)	mg/kg	232		N/A
PCB	Aroclor 1260	µg/kg	135	J	740
Metals	Antimony (a)	mg/kg	2.2	J	410
	Arsenic (a)	mg/kg	14.3		1.6
	Beryllium	mg/kg	0.19	J	2000
	Cadmium	mg/kg	0.93		800
	Chromium	mg/kg	29.4		180,000**
	Copper	mg/kg	63		41000
	Lead (a)	mg/kg	127		800
	Mercury	mg/kg	0.092		34
	Nickel	mg/kg	26.4		20000
	Selenium (a)	mg/kg	1.5	J	5100
	Silver	mg/kg	0.26	J	5100
	Zinc	mg/kg	460		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSE06					
TPH	TPH (>C12-C28)	mg/kg	79		2500*
	TPH (>C28-C35)	mg/kg	88.9		5000*
	TPH (C6-C35)	mg/kg	168		N/A
PCB	Aroclor 1260	µg/kg	33		740
Metals	Antimony (a)	mg/kg	2.7	J	410
	Arsenic (a)	mg/kg	11.6		1.6
	Beryllium	mg/kg	0.23	J	2000
	Cadmium	mg/kg	1.2		800
	Chromium	mg/kg	24.4		180,000**
	Copper	mg/kg	77.2		41000
	Lead (a)	mg/kg	191		800
	Mercury	mg/kg	0.059	J	34
	Nickel	mg/kg	24.2		20000
	Selenium (a)	mg/kg	1.4	J	5100
	Silver	mg/kg	0.23	J	5100
	Zinc	mg/kg	345		310000
SVOCs	Acenaphthylene	µg/kg	41.6	J	N/A
	Anthracene	µg/kg	57.3	J	170000000
	Benzo(a)anthracene	µg/kg	382		2100
	Benzo(a)pyrene	µg/kg	721		210
	Benzo(b)fluoranthene	µg/kg	1500		2100
	Benzo(g,h,i)perylene	µg/kg	1490		N/A
	Benzo(k)fluoranthene	µg/kg	391		21000
	Chrysene	µg/kg	572		210000
	Dibenzo(a,h)anthracene	µg/kg	346		210
	bis(2-Ethylhexyl)phthalate	µg/kg	409		120000
	Fluoranthene	µg/kg	449		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	1380		2100
	Phenanthrene	µg/kg	100	J	N/A
	Pyrene	µg/kg	365		17000000
FIN-SSE07					
TPH	TPH (>C12-C28)	mg/kg	296		2500*
	TPH (>C28-C35)	mg/kg	428		5000*
	TPH (C6-C35)	mg/kg	724		N/A
PCB	Aroclor 1254 (b)	µg/kg	83.6	J	740
	Aroclor 1260 (b)	µg/kg	108	J	740
Metals	Antimony (a)	mg/kg	3.6	J	410
	Arsenic (a)	mg/kg	34.5		1.6
	Beryllium	mg/kg	0.3		2000
	Cadmium (a)	mg/kg	6.5		800
	Chromium	mg/kg	54.9		180,000**
	Copper	mg/kg	159		41000
	Lead (a)	mg/kg	517		800
	Mercury	mg/kg	0.19		34
	Nickel	mg/kg	65.4		20000
	Selenium (a)	mg/kg	1.3	J	5100
	Silver	mg/kg	0.66		5100
	Zinc	mg/kg	2650		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSE08					
TPH	TPH (>C12-C28)	mg/kg	41.9		2500*
	TPH (>C28-C35)	mg/kg	15.1	J	5000*
	TPH (C6-C35)	mg/kg	57		N/A
PCB	Aroclor 1260	µg/kg	40		740
Metals	Arsenic	mg/kg	6.1		1.6
	Beryllium	mg/kg	0.78		2000
	Cadmium	mg/kg	0.93		800
	Chromium	mg/kg	17.4		180,000**
	Copper	mg/kg	21.7		41000
	Lead	mg/kg	61.2		800
	Mercury	mg/kg	0.11		34
	Nickel	mg/kg	13.2		20000
	Silver	mg/kg	0.1	J	5100
	Zinc	mg/kg	305		310000
FIN-SSE09					
Metals	Arsenic	mg/kg	5.5		1.6
	Beryllium	mg/kg	0.89		2000
	Cadmium	mg/kg	0.18	J	800
	Chromium	mg/kg	17.3		180000**
	Copper	mg/kg	13		41000
	Lead	mg/kg	32.6		800
	Mercury	mg/kg	0.055	J	34
	Nickel	mg/kg	13.8		20000
	Silver	mg/kg	0.12	J	5100
	Zinc	mg/kg	68.9		310000
FIN-SSE10					
TPH	TPH (>C12-C28)	mg/kg	91.3		2500*
	TPH (>C28-C35)	mg/kg	94.6		5000*
	TPH (C6-C35)	mg/kg	186		N/A
PCB	Aroclor 1260	µg/kg	124		740
Metals	Antimony (b)	mg/kg	1.7	J	410
	Arsenic (b)	mg/kg	7.6		1.6
	Beryllium	mg/kg	0.39		2000
	Cadmium	mg/kg	4.7		800
	Chromium	mg/kg	23.6		180,000**
	Copper	mg/kg	104		41000
	Lead	mg/kg	267		800
	Mercury	mg/kg	0.098		34
	Nickel	mg/kg	22.5		20000
	Selenium (b)	mg/kg	2.1	J	5100
	Silver	mg/kg	0.84		5100
	Zinc	mg/kg	1580		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSE11					
TPH	TPH (>C12-C28)	mg/kg	136		2500*
	TPH (>C28-C35)	mg/kg	56		5000*
	TPH (C6-C35)	mg/kg	192		N/A
PCB	Aroclor 1248 (f)	µg/kg	123		740
	Aroclor 1260	µg/kg	74.7		740
Metals	Antimony (b)	mg/kg	7.4		410
	Arsenic (b)	mg/kg	16.8		1.6
	Beryllium	mg/kg	0.21	J	2000
	Cadmium (b)	mg/kg	7.5		800
	Chromium	mg/kg	31.7		180,000**
	Copper	mg/kg	283		41000
	Lead	mg/kg	276		800
	Mercury	mg/kg	0.086	J	34
	Nickel	mg/kg	143		20000
	Selenium (b)	mg/kg	0.69	J	5100
	Silver	mg/kg	0.81		5100
	Zinc	mg/kg	2320		310000
SVOCs	Benzo(a)anthracene	µg/kg	211		2100
	Benzo(a)pyrene	µg/kg	255		210
	Benzo(b)fluoranthene	µg/kg	605		2100
	Benzo(g,h,i)perylene	µg/kg	301		N/A
	Benzo(k)fluoranthene	µg/kg	170		21000
	Chrysene	µg/kg	331		210000
	Dibenzo(a,h)anthracene	µg/kg	86.2	J	210
	Fluoranthene	µg/kg	280		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	292		2100
	Phenanthrene	µg/kg	91	J	N/A
	Pyrene	µg/kg	285		17000000
FIN-SSE12					
TPH	TPH (>C12-C28)	mg/kg	2050		2500*
	TPH (>C28-C35)	mg/kg	3630		5000*
	TPH (C6-C35)	mg/kg	5680		N/A
PCB	Aroclor 1260	µg/kg	2080		740
Metals	Antimony (b)	mg/kg	0.8	J	410
	Arsenic (b)	mg/kg	5.5		1.6
	Beryllium	mg/kg	0.34		2000
	Cadmium	mg/kg	3.8		800
	Chromium	mg/kg	34.2		180,000**
	Copper	mg/kg	170		41000
	Lead (b)	mg/kg	211		800
	Mercury	mg/kg	0.096		34
	Nickel	mg/kg	27.5		20000
	Selenium (b)	mg/kg	1.8	J	5100
	Silver	mg/kg	1.6		5100
	Zinc	mg/kg	681		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSE13					
TPH	TPH (>C12-C28)	mg/kg	2370		2500*
	TPH (>C28-C35)	mg/kg	2140		5000*
	TPH (C6-C35)	mg/kg	4510		N/A
PCB	Aroclor 1260	µg/kg	2070		740
Metals	Antimony (b)	mg/kg	5.3		410
	Arsenic (b)	mg/kg	7.2		1.6
	Beryllium	mg/kg	0.21		2000
	Cadmium (b)	mg/kg	14.9		800
	Chromium	mg/kg	88.3		180,000**
	Copper	mg/kg	5490		41000
	Lead	mg/kg	663		800
	Mercury	mg/kg	0.15		34
	Nickel	mg/kg	290		20000
	Silver	mg/kg	7.3		5100
	Zinc	mg/kg	5310		310000
FIN-SSE14					
TPH	TPH (>C12-C28)	mg/kg	7790		2500*
	TPH (>C28-C35)	mg/kg	8270		5000*
	TPH (C6-C35)	mg/kg	16100		N/A
PCB	Aroclor 1260	µg/kg	172		740
Metals	Antimony (b)	mg/kg	0.5	J	410
	Arsenic (b)	mg/kg	3.9		1.6
	Beryllium	mg/kg	0.2	J	2000
	Cadmium	mg/kg	1.8		800
	Chromium	mg/kg	35		180,000**
	Copper	mg/kg	42.1		41000
	Lead (b)	mg/kg	121		800
	Mercury	mg/kg	0.037	J	34
	Nickel	mg/kg	17.4		20000
	Selenium (b)	mg/kg	0.3	J	5100
	Silver	mg/kg	0.27	J	5100
	Zinc	mg/kg	878		310000
FIN-SSE15					
Metals	Arsenic (b)	mg/kg	13.9		1.6
	Beryllium	mg/kg	0.76		2000
	Cadmium	mg/kg	0.56		800
	Chromium	mg/kg	9.8		180,000**
	Copper	mg/kg	19.6		41000
	Lead (b)	mg/kg	207		800
	Mercury	mg/kg	0.023	J	34
	Nickel	mg/kg	12.4		20000
	Silver	mg/kg	1.5		5100
	Zinc	mg/kg	439		310000
SVOCs	Benzo(b)fluoranthene	µg/kg	52.5	J	2100
	Fluoranthene	µg/kg	51.3	J	22000000
	Pyrene	µg/kg	48.3	J	17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSE16					
TPH	TPH (>C12-C28)	mg/kg	108		2500*
	TPH (>C28-C35)	mg/kg	127		5000*
	TPH (C6-C35)	mg/kg	234		N/A
Metals	Arsenic (b)	mg/kg	4.8		1.6
	Beryllium	mg/kg	0.32		2000
	Cadmium	mg/kg	0.55		800
	Chromium	mg/kg	15.6		180,000**
	Copper	mg/kg	10		41000
	Lead (b)	mg/kg	83		800
	Mercury	mg/kg	0.1		34
	Nickel	mg/kg	8.3		20000
	Selenium (b)	mg/kg	3.5	J	5100
	Silver	mg/kg	0.11	J	5100
	Zinc	mg/kg	122		310000
SVOCs	Acenaphthene	µg/kg	191		33000000
	Anthracene	µg/kg	328		170000000
	Benzo(a)anthracene	µg/kg	1190		2100
	Benzo(a)pyrene	µg/kg	1060		210
	Benzo(b)fluoranthene	µg/kg	1590		2100
	Benzo(g,h,i)perylene	µg/kg	619		N/A
	Benzo(k)fluoranthene	µg/kg	555		21000
	Carbazole	µg/kg	286		N/A
	Chrysene	µg/kg	1290		210000
	Dibenzo(a,h)anthracene	µg/kg	147	J	210
	Dibenzofuran	µg/kg	106	J	1000000
	Fluoranthene	µg/kg	3460		22000000
	Fluorene	µg/kg	142	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	719		2100
	Naphthalene	µg/kg	77.5	J	18000
	Phenanthrene	µg/kg	1970		N/A
	Pyrene	µg/kg	2770		17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SSF14					
TPH	TPH (>C12-C28)	mg/kg	7260		2500*
	TPH (>C28-C35)	mg/kg	7100		5000*
	TPH (C6-C35)	mg/kg	14400		N/A
Pesticide	Pentachlorophenol	µg/kg	14.1	J	9000
PCB	Aroclor 1260	µg/kg	1220		740
Metals	Arsenic (b)	mg/kg	11.8		1.6
	Beryllium	mg/kg	0.29		2000
	Cadmium (b)	mg/kg	11		800
	Chromium	mg/kg	91.4		180,000**
	Copper	mg/kg	520		41000
	Lead	mg/kg	589		800
	Mercury	mg/kg	0.12		34
	Nickel	mg/kg	42.5		20000
	Silver	mg/kg	1.1		5100
	Zinc	mg/kg	3010		310000
SVOCs	Benzo(b)fluoranthene	µg/kg	938	J	2100
	Chrysene	µg/kg	687	J	210000
	Fluoranthene	µg/kg	1320	J	22000000
	Phenanthrene	µg/kg	724	J	N/A
	Pyrene	µg/kg	969	J	17000000
VOCs	Acetone	µg/kg	258		630000000
	Benzene	µg/kg	1.4	J	5400
	Methyl ethyl ketone	µg/kg	34.4		200000000
	Toluene	µg/kg	1.2	J	45000000
FIN-SSF15					
TPH	TPH (>C12-C28)	mg/kg	2400		2500*
	TPH (>C28-C35)	mg/kg	2700		5000*
	TPH (C6-C35)	mg/kg	5100		N/A
PCB	Aroclor 1260	µg/kg	480		740
Metals	Arsenic (b)	mg/kg	8.1		1.6
	Beryllium	mg/kg	0.19	J	2000
	Cadmium (b)	mg/kg	6.7		800
	Chromium	mg/kg	83.9		180,000**
	Copper	mg/kg	241		41000
	Lead	mg/kg	644		800
	Mercury	mg/kg	0.093		34
	Nickel	mg/kg	33.4		20000
	Silver	mg/kg	3.2		5100
	Zinc	mg/kg	1790		310000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB01-SS01-01					
PCB	Aroclor 1260	µg/kg	117		740
Metals	Antimony (b)	mg/kg	1.1	J	410
	Arsenic (b)	mg/kg	6.4		1.6
	Beryllium	mg/kg	0.29		2000
	Cadmium	mg/kg	0.47		800
	Chromium	mg/kg	15.1		180,000**
	Copper	mg/kg	33.2		41000
	Lead (b)	mg/kg	64.3		800
	Mercury	mg/kg	0.04	J	34
	Nickel	mg/kg	31.4		20000
	Silver	mg/kg	0.12	J	5100
	Zinc	mg/kg	183		310000
SVOCs	Acenaphthene	µg/kg	47.3	J	33000000
	Anthracene	µg/kg	61.8	J	170000000
	Benzo(a)anthracene	µg/kg	400		2100
	Benzo(a)pyrene	µg/kg	463		210
	Benzo(b)fluoranthene	µg/kg	814		2100
	Benzo(g,h,i)perylene	µg/kg	395		N/A
	Benzo(k)fluoranthene	µg/kg	238		21000
	Carbazole	µg/kg	66	J	N/A
	Chrysene	µg/kg	515		210000
	Dibenzo(a,h)anthracene	µg/kg	89.7	J	210
	Dibenzofuran	µg/kg	36.7	J	1000000
	Fluoranthene	µg/kg	811		22000000
	Fluorene	µg/kg	48.2	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	408		2100
	Naphthalene	µg/kg	50.9	J	18000
	Phenanthrene	µg/kg	475		N/A
	Pyrene	µg/kg	651		17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB02-SS01-01					
Metals	Antimony	mg/kg	0.53	J	410
	Arsenic	mg/kg	9.8		1.6
	Beryllium	mg/kg	0.96		2000
	Cadmium	mg/kg	1.5		800
	Chromium	mg/kg	18.1		180,000**
	Copper	mg/kg	51.1		41000
	Lead	mg/kg	409		800
	Mercury	mg/kg	0.68		34
	Nickel	mg/kg	14.2		20000
	Selenium	mg/kg	0.25	J	5100
	Silver	mg/kg	0.74		5100
	Zinc	mg/kg	698		310000
SVOCs	Acenaphthene	µg/kg	180	J	33000000
	Anthracene	µg/kg	347		170000000
	Benzo(a)anthracene	µg/kg	1110		2100
	Benzo(a)pyrene	µg/kg	1040		210
	Benzo(b)fluoranthene	µg/kg	1560		2100
	Benzo(g,h,i)perylene	µg/kg	726		N/A
	Benzo(k)fluoranthene	µg/kg	472		21000
	Carbazole	µg/kg	229		N/A
	Chrysene	µg/kg	1130		210000
	Dibenzo(a,h)anthracene	µg/kg	148	J	210
	Dibenzofuran	µg/kg	67.3	J	1000000
	Fluoranthene	µg/kg	2770		22000000
	Fluorene	µg/kg	162	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	804		2100
	Phenanthrene	µg/kg	1720		N/A
	Pyrene	µg/kg	2080		17000000
FIN-SB03-SS01-01					
Metals	Arsenic	mg/kg	4.9		1.6
	Beryllium	mg/kg	0.79		2000
	Cadmium	mg/kg	0.099	J	800
	Chromium	mg/kg	16.1		180,000**
	Copper	mg/kg	17.6		41000
	Lead	mg/kg	62.5		800
	Mercury	mg/kg	0.14		34
	Nickel	mg/kg	9.9		20000
	Selenium	mg/kg	0.43	J	5100
	Silver	mg/kg	0.1	J	5100
	Zinc	mg/kg	106		310000
SVOCs	Anthracene	µg/kg	42	J	170000000
	Benzo(a)anthracene	µg/kg	161	J	2100
	Benzo(a)pyrene	µg/kg	164	J	210
	Benzo(b)fluoranthene	µg/kg	240		2100
	Benzo(g,h,i)perylene	µg/kg	110	J	N/A
	Benzo(k)fluoranthene	µg/kg	75.6	J	21000
	Chrysene	µg/kg	173	J	210000
	Fluoranthene	µg/kg	372		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	115	J	2100
	Phenanthrene	µg/kg	223		N/A
	Pyrene	µg/kg	292		17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB04-SS01-01					
PCB	Aroclor 1260	µg/kg	1270		740
Metals	Arsenic (a)	mg/kg	9.1		1.6
	Beryllium	mg/kg	0.49		2000
	Cadmium	mg/kg	1.7		800
	Chromium	mg/kg	27.5		180,000**
	Copper	mg/kg	65.5		41000
	Lead (a)	mg/kg	145		800
	Mercury	mg/kg	0.044	J	34
	Nickel	mg/kg	38.6		20000
	Selenium (a)	mg/kg	3	J	5100
	Silver	mg/kg	0.55	J	5100
	Zinc	mg/kg	746		310000
FIN-SB05-SS01-01					
Metals	Antimony (a)	mg/kg	7.4		410
	Arsenic (a)	mg/kg	43.8		1.6
	Beryllium	mg/kg	0.54		2000
	Cadmium (a)	mg/kg	2.8		800
	Chromium	mg/kg	19.9		180,000**
	Copper	mg/kg	146		41000
	Lead	mg/kg	593		800
	Mercury	mg/kg	0.084	J	34
	Nickel	mg/kg	22.4		20000
	Selenium (a)	mg/kg	1.3	J	5100
	Silver	mg/kg	0.29	J	5100
	Zinc	mg/kg	622		310000
SVOCs	Acenaphthene	µg/kg	78.5	J	33000000
	Acenaphthylene	µg/kg	244		N/A
	Anthracene	µg/kg	228		170000000
	Benzo(a)anthracene	µg/kg	843		2100
	Benzo(a)pyrene	µg/kg	1190		210
	Benzo(b)fluoranthene	µg/kg	1900		2100
	Benzo(g,h,i)perylene	µg/kg	908		N/A
	Benzo(k)fluoranthene	µg/kg	596		21000
	Carbazole	µg/kg	76.6	J	
	Chrysene	µg/kg	1030		210000
	Dibenzo(a,h)anthracene	µg/kg	217		210
	Dibenzofuran	µg/kg	90.1	J	1000000
	Fluoranthene	µg/kg	1480		22000000
	Fluorene	µg/kg	82.9	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	1030		2100
	2-Methylnaphthalene	µg/kg	94.9	J	4100000
	Phenanthrene	µg/kg	614		N/A
	Pyrene	µg/kg	1380		17000000
VOCs	Acetone	µg/kg	101		630000000
	Methyl ethyl ketone	µg/kg	13.4	J	200000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB06-SS01-01					
Metals	Arsenic	mg/kg	6		1.6
	Beryllium	mg/kg	0.56		2000
	Cadmium	mg/kg	0.11	J	800
	Chromium	mg/kg	11.2		180,000**
	Copper	mg/kg	19.6		41000
	Lead	mg/kg	73		800
	Mercury	mg/kg	0.056	J	34
	Nickel	mg/kg	12.3		20000
	Silver	mg/kg	0.18	J	5100
	Zinc	mg/kg	107		310000
SVOCs	Benzo(a)anthracene	µg/kg	396		2100
	Benzo(a)pyrene	µg/kg	480		210
	Benzo(b)fluoranthene	µg/kg	1060		2100
	Benzo(g,h,i)perylene	µg/kg	495		N/A
	Benzo(k)fluoranthene	µg/kg	324		21000
	Chrysene	µg/kg	550		210000
	Dibenzo(a,h)anthracene	µg/kg	139	J	210
	Fluoranthene	µg/kg	468		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	525		2100
	Phenanthrene	µg/kg	106	J	N/A
	Pyrene	µg/kg	378		17000000
FIN-SB07-SS01-01					
TPH	TPH (>C12-C28)	mg/kg	118		2500*
	TPH (C6-C35)	mg/kg	118		N/A
Metals	Arsenic	mg/kg	6.3		1.6
	Beryllium	mg/kg	1		2000
	Chromium	mg/kg	21.2		180,000**
	Copper	mg/kg	7.2		41000
	Lead	mg/kg	22.9		800
	Mercury	mg/kg	0.041	J	34
	Nickel	mg/kg	8.9		20000
	Selenium	mg/kg	0.57	J	5100
	Silver	mg/kg	0.085	J	5100
	Zinc	mg/kg	35.5		310000
FIN-SB08-SS01-01					
Metals	Arsenic	mg/kg	4		1.6
	Beryllium	mg/kg	0.48		2000
	Chromium	mg/kg	12.5		180,000**
	Copper	mg/kg	7.6		41000
	Lead	mg/kg	12.6		800
	Nickel	mg/kg	10.4		20000
	Selenium	mg/kg	0.24	J	5100
	Zinc	mg/kg	39.5		310000
SVOCs	Benzo(a)anthracene	µg/kg	120	J	2100
	Benzo(a)pyrene	µg/kg	114	J	210
	Benzo(b)fluoranthene	µg/kg	171	J	2100
	Benzo(g,h,i)perylene	µg/kg	86.5	J	N/A
	Benzo(k)fluoranthene	µg/kg	39.8	J	21000
	Chrysene	µg/kg	121	J	210000
	Fluoranthene	µg/kg	288		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	93.3	J	2100
	Phenanthrene	µg/kg	175	J	N/A
	Pyrene	µg/kg	229		17000000

Fintube Phase II ESA-Surface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB09-SS01-01					
PCB	Aroclor 1260	µg/kg	45.3		740
Metals	Arsenic	mg/kg	4.4		1.6
	Beryllium	mg/kg	0.73		2000
	Chromium	mg/kg	12		180,000**
	Copper	mg/kg	9.4		41000
	Lead	mg/kg	25.6		800
	Nickel	mg/kg	12		20000
	Selenium	mg/kg	0.3	J	5100
	Silver	mg/kg	0.068	J	5100
	Zinc	mg/kg	55.6		310000
FIN-SB10-SS01-01					
Metals	Arsenic	mg/kg	9.1		1.6
	Beryllium	mg/kg	0.56		2000
	Cadmium	mg/kg	0.48		800
	Chromium	mg/kg	11.8		180,000**
	Copper	mg/kg	15.7		41000
	Lead	mg/kg	99		800
	Mercury	mg/kg	0.18		34
	Nickel	mg/kg	8.7		20000
	Selenium	mg/kg	0.44	J	5100
	Silver	mg/kg	0.14	J	5100
	Zinc	mg/kg	195		310000
SVOCs	Benzo(a)anthracene	µg/kg	90.6	J	2100
	Benzo(a)pyrene	µg/kg	72	J	210
	Benzo(b)fluoranthene	µg/kg	136	J	2100
	Benzo(g,h,i)perylene	µg/kg	58.2	J	N/A
	Benzo(k)fluoranthene	µg/kg	48.3	J	21000
	Chrysene	µg/kg	112	J	210000
	Fluoranthene	µg/kg	231		22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	54.6	J	2100
	Phenanthrene	µg/kg	115	J	N/A
	Pyrene	µg/kg	144	J	17000000

Notes and Abbreviations :

Source: U.S. Environmental Protection Agency Region 6, Industrial Soil Screening Levels, Ver. 2009

* ODEQ Regulatory Limit

** U.S. Environmental Protection Agency Region 6, MCL-Based Soil Screening Levels, Ver. 2009

Bolded and yellow shaded area exceed screening levels

J - Estimated Values

mg/kg - milligrams per kilogram

µg/kg - micrograms per kilogram

N/A – regulatory limits for the state of Oklahoma are not available

Qal - Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

(a) Elevated reporting limit(s) due to matrix interference.

(b) CCV and BS outside of control limits; results may be biased high; suspected laboratory contaminant.

(c) Suspected laboratory contaminant.

(d) Primary and confirmation results differ by more than 40%.

Fintube Phase II ESA-Subsurface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB01-DS01-01					
PCB	Aroclor 1260	µg/kg	218		740
Metals	Arsenic	mg/kg	2.4		1.6
	Beryllium	mg/kg	0.18	J	2000
	Cadmium	mg/kg	0.26		800
	Chromium	mg/kg	5.8		180,000**
	Copper	mg/kg	7		41000
	Lead	mg/kg	11.7		800
	Nickel	mg/kg	4.7		20000
	Selenium	mg/kg	0.22	J	5100
	Zinc	mg/kg	40.7		310000
SVOCs	Acenaphthene	µg/kg	110	J	33000000
	Anthracene	µg/kg	152	J	170000000
	Benzo(a)anthracene	µg/kg	1290		2100
	Benzo(a)pyrene	µg/kg	1250		210
	Benzo(b)fluoranthene	µg/kg	4980		2100
	Benzo(g,h,i)perylene	µg/kg	1840		N/A
	Benzo(k)fluoranthene	µg/kg	1260		21000
	Carbazole	µg/kg	75.8	J	N/A
	Chrysene	µg/kg	2750		210000
	Dibenzo(a,h)anthracene	µg/kg	515		210
	Dibenzofuran	µg/kg	81.3	J	1000000
	Fluoranthene	µg/kg	2010		22000000
	Fluorene	µg/kg	129	J	22000000
	Indeno(1,2,3-cd)pyrene	µg/kg	1780		2100
	2-Methylnaphthalene	µg/kg	74.4	J	4100000
	Naphthalene	µg/kg	146	J	18000
	Phenanthrene	µg/kg	740		N/A
	Pyrene	µg/kg	1160		17000000
FIN-SB02-DS01-01					
TPH	TPH (C6-C12)	mg/kg	103		500*
	TPH (>C12-C28)	mg/kg	51.5		2500*
	TPH (C6-C35)	mg/kg	154		N/A
Metals	Arsenic	mg/kg	9.6		1.6
	Beryllium	mg/kg	0.92		2000
	Cadmium	mg/kg	0.06	J	800
	Chromium	mg/kg	21.7		180,000**
	Copper	mg/kg	23.4		41000
	Lead	mg/kg	22.5		800
	Mercury	mg/kg	0.052	J	34
	Nickel	mg/kg	30.9		20000
	Silver	mg/kg	0.1	J	5100
	Zinc	mg/kg	93.2		310000
VOCs	2-Methylnaphthalene	µg/kg	41.2	J	4100000

Fintube Phase II ESA-Subsurface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB03-DS01-01					
TPH	TPH (C6-C12)	mg/kg	9.04	J	500*
	TPH (>C12-C28)	mg/kg	10.7	J	2500*
	TPH (C6-C35)	mg/kg	19.7	J	N/A
Metals	Arsenic (b)	mg/kg	14		1.6
	Beryllium	mg/kg	0.91		2000
	Cadmium (b)	mg/kg	0.19	J	800
	Chromium	mg/kg	21.2		180,000**
	Copper	mg/kg	22.4		41000
	Lead (b)	mg/kg	31.3		800
	Mercury	mg/kg	0.067	J	34
	Nickel	mg/kg	36.8		20000
	Zinc	mg/kg	49.9		310000
FIN-SB04-DS01-01					
TPH	TPH (>C12-C28)	mg/kg	101		2500*
	TPH (C6-C35)	mg/kg	101		N/A
Pesticides	Pentachlorophenol	µg/kg	11	J	9000
PCB	Aroclor 1260	µg/kg	124000		740
Metals	Arsenic (a)	mg/kg	13.3		1.6
	Beryllium	mg/kg	0.7		2000
	Chromium	mg/kg	22.3		180,000**
	Copper	mg/kg	24.1		41000
	Lead (a)	mg/kg	31.4		800
	Mercury	mg/kg	0.052	J	34
	Nickel	mg/kg	20.2		20000
	Silver	mg/kg	0.07	J	5100
	Zinc	mg/kg	39.3		310000
VOCs	1,2,4-Trichlorobenzene	µg/kg	9750		99000
	Benzene	µg/kg	0.82	J	5400
	Chlorobenzene	µg/kg	16		1400000
FIN-SB05-DS01-01					
Metals	Arsenic (a)	mg/kg	8.3		1.6
	Beryllium (a)	mg/kg	1.3		2000
	Chromium (a)	mg/kg	23		180,000**
	Copper (a)	mg/kg	9.4		41000
	Lead (a)	mg/kg	15.5		800
	Mercury	mg/kg	0.045	J	34
	Nickel (a)	mg/kg	26.8		20000
	Selenium (a)	mg/kg	0.51	J	5100
	Zinc (a)	mg/kg	42.9		310000
	Acetone	µg/kg	18.5		630000000

Fintube Phase II ESA-Subsurface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB06-DS01-01					
Metals	Arsenic	mg/kg	30.3		1.6
	Beryllium	mg/kg	0.59		2000
	Chromium	mg/kg	20.7		180,000**
	Copper	mg/kg	23.4		41000
	Lead	mg/kg	30.7		800
	Mercury	mg/kg	0.052	J	34
	Nickel	mg/kg	17.6		20000
	Silver	mg/kg	0.096	J	5100
	Zinc	mg/kg	34		310000
SVOCs	2-Methylnaphthalene	µg/kg	49.3	J	4100000
FIN-SB07-DS01-01					
Metals	Arsenic (b)	mg/kg	18.7		1.6
	Beryllium	mg/kg	0.93		2000
	Chromium	mg/kg	20.8		180,000**
	Copper	mg/kg	28.4		41000
	Lead (b)	mg/kg	39.4		800
	Mercury	mg/kg	0.098		34
	Nickel	mg/kg	29.9		20000
	Selenium (b)	mg/kg	2.1	J	5100
	Zinc	mg/kg	63.9		310000
FIN-SB08-DS01-01					
Metals	Arsenic (b)	mg/kg	12.1		1.6
	Beryllium	mg/kg	0.3		2000
	Chromium	mg/kg	17.2		180,000**
	Copper	mg/kg	17.1		41000
	Lead (b)	mg/kg	39.6		800
	Mercury	mg/kg	0.069	J	34
	Nickel	mg/kg	5.9		20000
	Selenium (b)	mg/kg	0.38	J	5100
	Silver	mg/kg	0.084	J	5100
	Zinc	mg/kg	17.3		310000
FIN-SB09-DS01-01					
Herbicide	MCP	µg/kg	34700		620000
Metals	Arsenic (b)	mg/kg	23.7		1.6
	Beryllium	mg/kg	2.7		2000
	Chromium	mg/kg	46.8		180,000**
	Copper	mg/kg	27.7		41000
	Lead (b)	mg/kg	36.7		800
	Mercury	mg/kg	0.091	J	34
	Nickel	mg/kg	68.6		20000
	Silver	mg/kg	1.2	J	5100
	Thallium (b)	mg/kg	6.4		0.14**
	Zinc	mg/kg	69.8		310000

Fintube Phase II ESA-Subsurface Soil Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB10-DS01-01					
TPH	TPH (>C12-C28)	mg/kg	64.6		2500*
	TPH (C6-C35)	mg/kg	64.6		N/A
Metals	Arsenic	mg/kg	6.8		1.6
	Beryllium	mg/kg	0.9		2000
	Cadmium	mg/kg	0.84		800
	Chromium	mg/kg	22.5		180,000**
	Copper	mg/kg	24.4		41000
	Lead	mg/kg	25.6		800
	Mercury	mg/kg	0.13		34
	Nickel	mg/kg	79.8		20000
	Zinc	mg/kg	120		310000

Notes and Abbreviations :

Source: U.S. Environmental Protection Agency Region 6, Industrial Soil Screening Levels, Ver. 2009

* ODEQ Regulatory Limit

** U.S. Environmental Protection Agency Region 6, MCL-Based Soil Screening Levels, Ver. 2009

Bolded and yellow shaded area exceed screening levels

J - Estimated Values

B - Indicates analyte found in associated method blank

mg/kg - milligrams per kilogram

µg/kg - micrograms per kilogram

N/A – regulatory limits for the state of Oklahoma are not available

Qal - Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

(a) Elevated reporting limit(s) due to matrix interference.

(b) CCV and BS outside of control limits; results may be biased high; suspected laboratory contaminant.

(c) Suspected laboratory contaminant.

(d) Primary and confirmation results differ by more than 40%.

Fintube Phase II ESA-Groundwater Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB01-GW01-01					
TPH	TPH (C10-C28)	mg/l	0.827		1*
Metals	Arsenic (e)	µg/l	533		10
	Beryllium	µg/l	34.4		4
	Cadmium (e)	µg/l	433		5
	Chromium	µg/l	838		100
	Copper	µg/l	3860		1300
	Lead	µg/l	16000		15
	Mercury	µg/l	8.6		2
	Nickel	µg/l	1040		730**
	Silver	µg/l	18.7		180**
	Thallium (f)	µg/l	13.2	J	2
	Zinc	µg/l	192000		11000**
SVOCs	Benzo(b)fluoranthene	µg/l	2	J	0.03**
	Benzo(g,h,i)perylene	µg/l	1.2	J	N/A
	Chrysene	µg/l	1.5	J	3**
	Pyrene	µg/l	1.2	J	180**
VOC	Acetone	µg/l	13	J	5500**
	Chloroform	µg/l	0.77	J	0.15**
FIN-SB02-GW01-01					
Metals	Arsenic (a)	µg/l	646		10
	Beryllium (a)	µg/l	82.9		4
	Cadmium (a)	µg/l	49.2		5
	Chromium (a)	µg/l	2230		100
	Copper (a)	µg/l	1970		1300
	Lead (a)	µg/l	762		15
	Mercury	µg/l	0.58	J	2
	Nickel (a)	µg/l	3240		730**
	Thallium (b)	µg/l	2.2	J	2
	Zinc	µg/l	8930		11000**
SVOCs	2-Methylnaphthalene	µg/l	8.9		150
	Naphthalene	µg/l	2.4	J	0.14
	Phenanthrene	µg/l	3	J	N/A
VOC	1,1-Dichloroethane	µg/l	0.33	J	900
	cis-1,2-Dichloroethylene	µg/l	1.1		61
	Trichloroethylene	µg/l	0.48	J	N/A
	Xylene (total)	µg/l	0.62	J	210
FIN-SB03-GW01-01					
Metals	Arsenic	µg/l	7.4	J	10
	Chromium	µg/l	8.4	J	100
	Copper	µg/l	6.4	J	1300
	Lead (d)	µg/l	6.1	J	15
	Nickel	µg/l	15.2	J	730**
	Selenium	µg/l	4.8	J	50
	Thallium (b)	µg/l	0.089	J	2
	Zinc	µg/l	29.3		11000**

Fintube Phase II ESA-Groundwater Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB04-GW01-01					
PCB	Aroclor 1260	µg/l	4.7		0.034
TPH	TPH (C10-C28) (c)	mg/l	0.632		1*
	TPH-GRO (C6-C10) (a)	mg/l	0.0722		1*
	Chromium	µg/l	2.5	J	100
	Copper	µg/l	3	J	1300
	Lead (d)	µg/l	3.4	J	15
	Nickel	µg/l	5.4	J	730**
	Selenium	µg/l	5.1	J	50
	Thallium (b)	µg/l	0.15	J	2
	Zinc	µg/l	14.2	J	11000**
VOCs	Chlorobenzene	µg/l	5.5		90**
	1,2-Dichlorobenzene	µg/l	4.9		600
	1,4-Dichlorobenzene	µg/l	5		75
	1,2,4-Trichlorobenzene	µg/l	846		70
FIN-SB05-GW01-01					
TPH	TPH (C10-C28) (c)	mg/l	0.534		1*
Metals	Arsenic	µg/l	43.2		10
	Beryllium	µg/l	4		4
	Cadmium	µg/l	1.4	J	5
	Chromium	µg/l	71		100
	Copper	µg/l	71.6		1300
	Lead (d)	µg/l	123		15
	Mercury	µg/l	0.2	J	2
	Nickel	µg/l	101		730**
	Thallium (b)	µg/l	0.84	J	2
	Zinc	µg/l	201		11000**
SVOCs	Acenaphthene	µg/l	2.8	J	370**
	Dibenzofuran	µg/l	1.7	J	37**
	Fluorene	µg/l	2.3	J	240**
	Phenanthrene	µg/l	4.4	J	N/A
FIN-SB06-GW01-01					
Metals	Arsenic	µg/l	37.9		10
	Beryllium	µg/l	4.2		4
	Chromium	µg/l	89.8		100
	Copper	µg/l	73.7		1300
	Lead (d)	µg/l	93.6		15
	Nickel	µg/l	139		730**
	Selenium	µg/l	3.6	J	50
	Thallium (b)	µg/l	0.7	J	2
	Zinc	µg/l	200		11000**
FIN-SB07-GW01-01					
TPH	TPH (C10-C28) (b)	mg/l	0.168	J	1*
Metals	Chromium	µg/l	1.2	J	100
	Lead (c)	µg/l	3.3	J	15
	Nickel	µg/l	2.4	J	730**
	Selenium	µg/l	10.5		50
	Zinc	µg/l	9	J	11000**

Fintube Phase II ESA-Groundwater Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-SB08-GW01-01					
TPH	TPH (C10-C28) (b)	mg/l	0.292		1*
Metals	Antimony	µg/l	3.9	J	6
	Chromium	µg/l	2.3	J	100
	Copper	µg/l	2.8	J	1300
	Lead (c)	µg/l	4.3	J	15
	Nickel	µg/l	19.2	J	730**
	Selenium	µg/l	6.1	J	50
	Zinc	µg/l	17.8	J	11000**
FIN-SB09-GW01-01					
TPH	TPH (C10-C28) (d)	mg/l	0.356		1*
Metals	Arsenic (e)	µg/l	377		10
	Beryllium	µg/l	17.3		4
	Cadmium (e)	µg/l	5.1	J	5
	Chromium	µg/l	366		100
	Copper	µg/l	423		1300
	Lead (e)	µg/l	1690		15
	Mercury	µg/l	0.85	J	2
	Nickel	µg/l	633		730**
	Selenium (e)	µg/l	11.3	J	50
	Silver	µg/l	5.5	J	180**
	Zinc	µg/l	1020		11000**
VOC	Methyl chloride	µg/l	2.2		4.1**
FIN-SB10-GW01-01					
TPH	TPH (C10-C28) (b)	mg/l	0.336		1*
Metals	Cadmium	µg/l	1.6	J	5
	Chromium	µg/l	3	J	100
	Copper	µg/l	4.1	J	1300
	Lead (c)	µg/l	7.3	J	15
	Nickel	µg/l	39.6	J	730**
	Selenium	µg/l	25.1		50
	Zinc	µg/l	42.1		11000**
VOC	Chloroform	µg/l	0.67	J	0.15**

Notes and Abbreviations :

Source: U.S. Environmental Protection Agency Region 6, Regional Screening Levels - Water MCL, Ver. 2009

* ODEQ Regulatory Limit

**U.S. Environmental Protection Agency Region 6, Regional Screening Levels-Tapwater, Ver. 2009

Bolded and yellow shaded area exceed screening levels

J - Estimated Values

B - Indicates analyte found in associated method blank

mg/l - milligrams per kilogram

µg/l- micrograms per kilogram

N/A – regulatory limits for the state of Oklahoma are not available

Qal - Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

(a) Elevated reporting limit(s) due to matrix interference.

(b) CCV and BS outside of control limits; results may be biased high; suspected laboratory contaminant.

(c) Suspected laboratory contaminant.

(d) Primary and confirmation results differ by more than 40%.

Fintube Phase II ESA-IDW Samples-Analytical Detections

Method	Parameter	Units	Result	Qal	Limit
FIN-IDW-1					
Gen Chem	Corrosivity as pH	su	6.1		N/A
	Ignitability (Flashpoint) (a)	Deg. F	>200	>	N/A
Metals	Arsenic	mg/l	0.0063	J	1.6
	Barium	mg/l	0.66	J	190000
	Cadmium	mg/l	0.0029	J	800
	Chromium	mg/l	0.0013	J	180,000**
	Lead	mg/l	0.0045	J	800
	Mercury	mg/l	0.0011	J	34
	Selenium	mg/l	0.03	J	5100
FIN-IDW-2					
Gen Chem	Corrosivity as pH	su	7.5		N/A
	Ignitability (Flashpoint) (a)	Deg. F	>200	>	N/A
Metals	Arsenic	mg/l	0.0076	J	1.6
	Barium	mg/l	1.9		190000
	Lead	mg/l	0.021	J	800
	Mercury	mg/l	0.001	J	34
	Selenium	mg/l	0.029	J	5100

Notes and Abbreviations :

Source: U.S. Environmental Protection Agency Region 6, Regional Screening Levels - Water MCL, Ver. 2009

**U.S. Environmental Protection Agency Region 6, Regional Screening Levels-Tapwater, Ver. 2009

Bolded and yellow shaded area exceed screening levels

J - Estimated Values

> + Not Ignitable

mg/l - milligrams per kilogram

N/A – regulatory limits for the state of Oklahoma are not available

Qal - Validation qualifier assigned by project chemist - reason code definitions provided in the validation reports

Appendix D

Laboratory Analytical Data Packages (CD)
and Quality Control Summary Report (Final Version)

Quality Control Summary Report

1. Introduction

Ninety-one (91) soil and ten (10) groundwater grab samples were collected from April 12 – 14, 2010 and April 30, 2010. In addition to these samples, two trip blank, five soil and one water matrix spike/matrix spike duplicate (MS/MSD) sample sets, and nine soil and one water field duplicates were collected. Samples were analyzed selectively for Volatile Organic Compounds (VOCs); Semi-volatile Organic Compounds (SVOCs); Total Petroleum Hydrocarbon (TPH) – Diesel Range Organics (DRO) and Gasoline Range Organics (GRO); Herbicides; Polychlorinated Biphenyls (PCBs); and Priority Pollutant (PP) Metals. Investigative Derived Waste (IDW) was also collected and analyzed for TCLP VOCs, TCLP SVOCs, TCLP RCRA metals, Corrosivity, Ignitability and Cyanide and Sulfide Reactivity. The samples were sent to Accutest Laboratories, Orlando, Florida.

Each of the laboratory sample analytical reports was evaluated with respect to accuracy, precision, representativeness, and completeness. Accuracy has been evaluated according to surrogate recoveries, matrix spike and matrix spike duplicate recoveries (MS/MSD), and laboratory blank spike and laboratory blank spike duplicates (LBS/LBSD). Precision has been evaluated according to the results of relative percent difference (RPD) calculations. The validation did not include a review of chromatograms or recalculation of results based on surrogate recoveries. The results of this evaluation are listed below.

A list of laboratory data qualifiers and their meaning is provided as Table 1. A copy of the raw laboratory data for chemical analysis and chain of custody forms are included in Appendix C on CD.

Table 1. Laboratory Data Qualifiers and Descriptions

Qualifier	Description
U	Analyte not detected above the method detection limit.
B	Analyte was detected in the associated Method Blank.
N	Presumptive evidence of a compound
*	Outside of QC limits.
J	Indicates an estimated value.

2. Chain of Custody Report

SAMPLE I.D.	LAB NUMBER	MATRIX	DATE	TIME	VOC	SVOC	TPH/DRO/GRO	Metals	Herbicides	PCBs
					(8260B)	(8270C)	(8015)	(PP)	(8151)	(8082)
FIN-SSD11	F72981-1	Soil	15-Apr-10	9:40			X	X		X
FIN-SSD09	F72981-2	Soil	15-Apr-10	11:15			X	X		X
FIN-SSD11-D	F72981-3	Soil	15-Apr-10	9:40			X	X		X
FIN-SSE10	F72981-4	Soil	15-Apr-10	10:40			X	X		X
FIN-SSD08	F72981-5	Soil	15-Apr-10	11:05			X	X		X
FIN-SSD13	F72981-6	Soil	15-Apr-10	9:25			X	X		X
FIN-SSE08	F72981-7	Soil	15-Apr-10	10:55			X	X		X
FIN-SSB12	F72981-8	Soil	15-Apr-10	8:25			X	X		X
FIN-SSF15-D	F72981-9	Soil	15-Apr-10	9:10			X	X		X
FIN-SSE12	F72981-10	Soil	15-Apr-10	9:55			X	X		X
FIN-SSF15	F72981-11	Soil	15-Apr-10	9:10			X	X		X
FIN-SSE13	F72981-12	Soil	15-Apr-10	10:00			X	X		X
FIN-SB10-GW01	F72980-1	Ground Water	15-Apr-10	11:50	X	X		X	X	X
FIN-SB09-GW01	F72980-2	Ground Water	15-Apr-10	10:15	X	X		X	X	X
FIN-SB07-GW01	F72980-3	Ground Water	15-Apr-10	8:30	X	X		X	X	X
FIN-SB08-GW01	F72980-4	Ground Water	15-Apr-10	9:30	X	X		X	X	X
FIN-SB01-GW01	F72980-5	Ground Water	15-Apr-10	11:10	X	X		X	X	X
FIN-SB08-GW01	F72972-1	Ground Water	15-Apr-10	9:30	X		X			
FIN-SB10-GW01	F72972-2	Ground Water	15-Apr-10	11:50	X		X			
FIN-SB07-GW01	F72972-3	Ground Water	15-Apr-10	8:30	X		X			
FIN-SB01-GW01	F72972-4	Ground Water	15-Apr-10	11:10	X		X			
FIN-SB09-GW01	F72972-5	Ground Water	15-Apr-10	10:15	X		X			
TRIP BLANK	F72972-6	Trip Blank	15-Apr-10	0:00						
FIN-SSE14	F72949-1	Soil	15-Apr-10	9:05			X	X		X
FIN-SSE15	F72949-2	Soil	15-Apr-10	11:45	X	X			X	
FIN-SSC14	F72949-3	Soil	15-Apr-10	8:40			X	X		X
FIN-SSD12	F72949-4	Soil	15-Apr-10	9:35			X	X		X

SAMPLE I.D.	LAB NUMBER	MATRIX	DATE	TIME	VOC	SVOC	TPH/DRO/GRO	Metals	Herbicides	PCBs
					(8260B)	(8270C)	(8015)	(PP)	(8151)	(8082)
FIN-SSE14-D	F72949-5	Soil	15-Apr-10	9:05			X	X		X
FIN-SSC15	F72949-6	Soil	15-Apr-10	11:35	X	X			X	
FIN-SSE14	F72949-7	Soil	15-Apr-10	11:25	X	X			X	
FIN-SSE16	F72949-8	Soil	15-Apr-10	12:00	X	X			X	
FIN-SSD14	F72949-9	Soil	15-Apr-10	8:50	X	X	X	X	X	X
FIN-SSE9	F72949-10	Soil	15-Apr-10	10:50	X	X	X	X	X	X
FIN-SSE11	F72949-11	Soil	15-Apr-10	10:30	X	X	X	X	X	X
FIN-SSF14	F72949-12	Soil	15-Apr-10	9:20	X	X	X	X	X	X
FIN-SSD10	F72949-13	Soil	15-Apr-10	9:45	X	X	X	X	X	X
FIN-SSB09	F72948-1	Soil	14-Apr-10	9:55			X	X		X
FIN-SSA08	F72948-2	Soil	14-Apr-10	9:10			X	X		X
FIN-SSA08	F72948-2D	MSD	14-Apr-10	9:10			X	X		X
FIN-SSA08	F72948-2S	MS	14-Apr-10	9:10			X	X		X
FIN-SSB14	F72948-3	Soil	14-Apr-10	15:45			X	X		X
FIN-SSE16	F72948-4	Soil	14-Apr-10	16:45			X	X		X
FIN-SSA10	F72948-5	Soil	14-Apr-10	10:30			X	X		X
FIN-SB02-DS01-D1	F72948-6	Soil	14-Apr-10	7:55			X	X		X
FIN-SSC08	F72948-7	Soil	14-Apr-10	9:35			X	X		X
FIN-SSC10	F72948-8	Soil	14-Apr-10	11:05			X	X		X
FIN-SSB10	F72948-9	Soil	14-Apr-10	10:55			X	X		X
FIN-SSD15	F72948-10	Soil	14-Apr-10	16:15			X	X		X
FIN-SSB03-DS01-01	F72948-11	Soil	14-Apr-10	8:05			X	X		X
FIN-SSB13	F72948-13	Soil	14-Apr-10	15:15			X	X		X
FIN-SSB06	F72948-14	Soil	14-Apr-10	8:25			X	X		X
FIN-SSA09	F72948-15	Soil	14-Apr-10	10:10			X	X		X
FIN-SSB12	F72948-16	Soil	14-Apr-10	15:05			X	X		X
FIN-SSA07	F72948-17	Soil	14-Apr-10	8:35			X	X		X

SAMPLE I.D.	LAB NUMBER	MATRIX	DATE	TIME	VOC	SVOC	TPH/DRO/GRO	Metals	Herbicides	PCBs
					(8260B)	(8270C)	(8015)	(PP)	(8151)	(8082)
FIN-SSA06-D	F72948-18	Soil	14-Apr-10	8:25			X	X		X
FIN-SSD16	F72948-19	Soil	14-Apr-10	16:25			X	X		X
FIN-SSA06	F72948-20	Soil	14-Apr-10	8:40			X	X		X
FIN-SSC13	F72948-21	Soil	14-Apr-10	15:35			X	X		X
FIN-SSE15	F72948-22	Soil	14-Apr-10	16:35			X	X		X
FIN-SB05-GW01-D	F72944-1	Ground Water	14-Apr-10	11:55	X		X			
FIN-SB04-GW01	F72944-2	Ground Water	14-Apr-10	11:30	X		X			
FIN-SB05-GW01	F72944-3	Ground Water	14-Apr-10	11:55	X		X			
FIN-SB06-GW01	F72944-4	Ground Water	14-Apr-10	14:10	X		X			
FIN-SB02-GW01	F72944-5	Ground Water	14-Apr-10	10:00	X		X			
FIN-SB02-GW01	F72944-5D	MSD	14-Apr-10	10:00	X		X			
FIN-SB02-GW01	F72944-5S	MS	14-Apr-10	10:00	X		X			
FIN-SB03-GW01	F72944-6	Ground Water	14-Apr-10	10:30	X		X			
TRIP BLANK	F72944-7	Trip Blank Water	14-Apr-10	0:00						
FIN-SB02-GW01	F72921-1	Ground Water	14-Apr-10	10:00		X	X	X	X	X
FIN-SB02-GW01	F72921-1D	MSD	14-Apr-10	10:00		X	X	X	X	X
FIN-SB02-GW01	F72921-1S	MS	14-Apr-10	10:00		X	X	X	X	X
FIN-SB04-GW01	F72921-2	Ground Water	14-Apr-10	11:30		X	X	X	X	X
FIN-SB06-GW01	F72921-3	Ground Water	14-Apr-10	14:10		X	X	X	X	X
FIN-SB03	F72921-4	Ground Water	14-Apr-10	10:30		X	X	X	X	X
FIN-SB05-GW01	F72921-5	Ground Water	14-Apr-10	11:55		X	X	X	X	X
FIN-SB05-GW01-D	F72921-6	Ground Water	14-Apr-10	11:55		X	X	X	X	X
FIN-SSA10-D	F72905-1	Soil	14-Apr-10	10:30			X	X		X
FIN-SB03-SS01-01	F72905-2	Soil	14-Apr-10	8:05	X	X			X	
FIN-SSC12	F72905-3	Soil	14-Apr-10	14:50	X	X	X	X	X	X
FIN-SB10-DS01-01	F72905-4	Soil	14-Apr-10	13:05	X	X	X	X	X	X
FIN-SB01-SS01-01	F72905-5	Soil	14-Apr-10	8:55	X	X	X	X	X	X

SAMPLE I.D.	LAB NUMBER	MATRIX	DATE	TIME	VOC	SVOC	TPH/DRO/GRO	Metals	Herbicides	PCBs
					(8260B)	(8270C)	(8015)	(PP)	(8151)	(8082)
FIN-SB07-SS01-01	F72905-6	Soil	14-Apr-10	10:30	X	X	X	X	X	X
FIN-SB08-DS01-01	F72905-7	Soil	14-Apr-10	15:30	X	X	X	X	X	X
FIN-SSC11	F72905-8	Soil	14-Apr-10	11:15	X	X	X	X	X	X
FIN-SB09-DS01-D1	F72905-9	Soil	14-Apr-10	12:15	X	X	X	X	X	X
FIN-SB07-DS01-01	F72905-10	Soil	14-Apr-10	10:55	X	X	X	X	X	X
FIN-SB07-DS01-01	F72905-10D	MSD	14-Apr-10	10:55	X	X	X	X	X	X
FIN-SB07-DS01-01	F72905-10S	MS	14-Apr-10	10:55	X	X	X	X	X	X
FIN-SB09-DS01-01	F72905-11	Soil	14-Apr-10	10:55	X	X	X	X	X	X
FIN-SB09-SS01-01	F72905-12	Soil	14-Apr-10	11:55	X	X	X	X	X	X
FIN-SB02-SS01-01	F72905-13	Soil	14-Apr-10	7:55	X	X			X	
FIN-SB08-SS01-01	F72905-14	Soil	14-Apr-10	14:50	X	X	X	X	X	X
FIN-SB10-SS01-01	F72905-15	Soil	14-Apr-10	12:50	X	X	X	X	X	X
FIN-SSC09	F72905-16	Soil	14-Apr-10	9:40	X	X	X	X	X	X
FIN-SSB08	F72905-17	Soil	14-Apr-10	9:25	X	X	X	X	X	X
FIN-SSA11	F72905-18	Soil	14-Apr-10	11:30	X	X	X	X	X	X
FIN-SB01-DS01-01	F72905-19	Soil	14-Apr-10	9:35	X	X	X	X	X	X
FIN-SSA01	F72882-1	Soil	13-Apr-10	8:40	X	X	X	X	X	X
FIN-SSB02	F72882-2	Soil	13-Apr-10	9:32	X	X	X	X	X	X
FIN-SSA03	F72882-3	Soil	13-Apr-10	9:45	X	X	X	X	X	X
FIN-SSD02	F72882-4	Soil	13-Apr-10	11:37	X	X	X	X	X	X
FIN-SSC03	F72882-5	Soil	13-Apr-10	10:05	X	X	X	X	X	X
FIN-SB06-DS01-01	F72881-1	Soil	13-Apr-10	15:40	X	X	X	X	X	X
FIN-SB05-DS01-01	F72881-2	Soil	13-Apr-10	13:50	X	X	X	X	X	X
FIN-SB05-SS01-01	F72881-3	Soil	13-Apr-10	13:35	X	X	X	X	X	X
FIN-SB06-SS01-01	F72881-4	Soil	13-Apr-10	14:45	X	X	X	X	X	X
FIN-SB04-SS01-01	F72881-5	Soil	13-Apr-10	11:55	X	X	X	X	X	X
FIN-SB06-SS01-D1	F72881-6	Soil	13-Apr-10	14:45	X	X	X	X	X	X

SAMPLE I.D.	LAB NUMBER	MATRIX	DATE	TIME	VOC	SVOC	TPH/DRO/GRO	Metals	Herbicides	PCBs
					(8260B)	(8270C)	(8015)	(PP)	(8151)	(8082)
FIN-SB04-DS01-D1	F72881-7	Soil	13-Apr-10	12:45	X	X	X	X	X	X
FIN-SB03-DS01-01	F72881-8	Soil	13-Apr-10	10:50	X	X			X	
FIN-SSD07-D	F72881-9	Soil	13-Apr-10	15:30			X	X		X
FIN-SSB07	F72881-10	Soil	13-Apr-10	16:35			X	X		X
FIN-SB02-SS01-01	F72881-11	Soil	13-Apr-10	8:50			X	X		X
FIN-SB03-SS01-01	F72881-12	Soil	13-Apr-10	10:25			X	X		X
FIN-SSE06	F72880-1	Soil	13-Apr-10	15:05	X	X	X	X	X	X
FIN-SSD01	F72880-2	Soil	13-Apr-10	11:30			X	X		X
FIN-SSB01	F72880-3	Soil	13-Apr-10	9:30			X	X		X
FIN-SSB03	F72880-4	Soil	13-Apr-10	9:55			X	X		X
FIN-SSD03	F72880-5	Soil	13-Apr-10	11:54			X	X		X
FIN-SSC02	F72880-6	Soil	13-Apr-10	9:20			X	X		X
FIN-SSB05	F72880-7	Soil	13-Apr-10	10:48	X	X	X	X	X	X
FIN-SSB04	F72880-8	Soil	13-Apr-10	10:22	X	X	X	X	X	X
FIN-SSC01	F72880-9	Soil	13-Apr-10	9:08	X	X	X	X	X	X
FIN-SSC05	F72880-10	Soil	13-Apr-10	11:12	X	X	X	X	X	X
FIN-SSC04	F72880-11	Soil	13-Apr-10	10:12			X	X		X
FIN-SSC04	F72880-11D	MSD	13-Apr-10	10:12			X	X		X
FIN-SSC04	F72880-11S	MS	13-Apr-10	10:12			X	X		X
FIN-SSB04 D	F72880-12	Soil	13-Apr-10	10:22			X	X		X
FIN-SSA02	F72880-13	Soil	13-Apr-10	9:37			X	X		X
FIN-SSD04	F72880-14	Soil	13-Apr-10	12:05			X	X		X
FIN-SSE04	F72879-1	Soil	13-Apr-10	14:35	X	X	X	X	X	X
FIN-SSE07	F72879-2	Soil	13-Apr-10	15:30			X	X		X
FIN-SSE07	F72879-2D	MSD	13-Apr-10	15:30			X	X		X
FIN-SSE07	F72879-2S	MS	13-Apr-10	15:30			X	X		X
FIN-SB02-DS01-01	F72879-3	Soil	13-Apr-10	9:25	X	X			X	

SAMPLE I.D.	LAB NUMBER	MATRIX	DATE	TIME	VOC	SVOC	TPH/DRO/GRO	Metals	Herbicides	PCBs
					(8260B)	(8270C)	(8015)	(PP)	(8151)	(8082)
FIN-SSD06	F72879-4	Soil	13-Apr-10	15:42			X	X		X
FIN-SSC07	F72879-5	Soil	13-Apr-10	16:15	X	X	X	X	X	X
FIN-SSD05	F72879-6	Soil	13-Apr-10	15:58	X	X	X	X	X	X
FIN-SSE05	F72879-7	Soil	13-Apr-10	14:48			X	X		X
FIN-SSD07	F72879-8	Soil	13-Apr-10	15:30			X	X		X
FIN-SSC06	F72879-9	Soil	13-Apr-10	16:30			X	X		X
FIN-SSC04	F72879-10	Soil	13-Apr-10	10:12			X	X		X
FIN-SSC04	F72879-10D	MSD	13-Apr-10	10:12			X	X		X
FIN-SSC04	F72879-10S	MS	13-Apr-10	10:12			X	X		X
FIN-SSC05	F72879-11	Soil	13-Apr-10	11:12			X	X		X
FIN-SSA05	F72879-12	Soil	13-Apr-10	10:40			X	X		X
FIN-SSA04	F72879-13	Soil	13-Apr-10	10:33			X	X		X

3. Evaluation of Analytical Methods

The Case Narratives for all Sample Delivery Groups (SDG) are included in Appendix C. These Case Narratives provide detailed analysis of the information used to evaluate the precision, accuracy and representativeness for the samples collected and analyzed. The discussion below will summarize the main findings and present any additional information used to determine any further validation flags or findings.

3.1. Precision

Precision was estimated using spike duplicate and field duplicate results. Duplicate results are presented in Table 2. USACE's criteria for field duplicate results are that the results from a pair should agree within a factor of three. Only field duplicate results that were five times above the detection limit in at least one sample of the pair were used to assess precision. Results are discussed below.

3.1.1. Volatile Organic Compounds (SW-846 Method 8260B)

Relative percent difference (RPD) values were within control limits for MS, LBS/LBSD and field duplicates.

SDG F72882:

- RPDs for the MSD for 1,1,2,2-Tetrachloroethane were outside control limits for batch VH2298. Probable cause due to sample homogeneity. This analyte was not detected in the corresponding field samples and no flags were added.

SDG F72944:

- RPDs for MSD for Styrene and Xylene (total) were outside control limits. Probable cause due to sample homogeneity. These analytes were not detected in the corresponding field samples, or were already "J" flagged, therefore no flags were added.

SDG F72944:

- RPD(s) for MSD for 1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethylene, 1,2-Dichloroethane, Benzene, Carbon disulfide, Carbon tetrachloride, Chloroethane, Chloroform, cis-1,2-Dichloroethylene, Methyl bromide, Methyl chloride, Methyl ethyl ketone, Methylene chloride, trans-1,2-Dichloroethylene, Vinyl chloride were outside control limits. Probable cause due to sample homogeneity. These analytes were not detected in the corresponding field samples, therefore no flags were added.

SDG F72944:

- RPD for MSD for 1,1,2,2-Tetrachloroethane was outside control limits. Probable cause due to sample homogeneity. This analytes was not detected in the corresponding field samples, therefore no flags were added.

3.1.2. Total Petroleum Hydrocarbons (SW-846 Method 8015/TX1005)

RPD values were within control limits for MS/MSD, LBS/LBSD, and field duplicates.

3.1.3. Herbicides (SW-846 Method 8151A)

RPD values were within control limits for MS/MSD, LBS/LBSD, and field duplicates with the following exceptions.

SDG F72881:

- MS/MSD Recovery for 2,4-DB were outside control limits. Probable cause due to matrix interference. The analyte was not detected in the corresponding field samples and no flags were added

3.1.4. PCBs (SW-846 Method 8082)

RPD values were within control limits for MS/MSD, LBS/LBSD, and field duplicates with the following exceptions.

SDG F72882:

- MS/MSD Recoveries for Aroclor 1260 were outside control limits. Probable cause due to matrix interference. There were either no detections of this analyte in the field samples, or the field sample was already flagged “J”, therefore no additional flags were assigned.

3.1.5. Semi-volatile Organic Compounds (SW-846 Method 8270C)

RPD values were within control limits for MS/MSD, LBS/LBSD, and field duplicates with the following exceptions.

SDG F72882:

- RPDs for MSD for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol, Benzoic acid, and Hexachlorocyclopentadiene were outside control limits. Probable cause due to sample homogeneity. The analyte was not detected in the corresponding field samples and no flags were added.

3.1.6. PP Metals (SW-846 Method 6010B, 7471A & 7470A)

RPD values were generally within control limits for MS/MSD, LBS/LBSD, and field duplicates with the following exceptions.

SDG F72882:

- RPDs for Duplicate for Arsenic, Zinc, Selenium, Silver were outside control limits for sample MP18117-D1. High RPD due to possible sample nonhomogeneity. The data for these analytes for the corresponding samples were flagged as “J”, estimated.
- RPDs for Serial Dilution for Beryllium, Cadmium, Selenium, Silver, Nickel were outside control limits for sample MP18117-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- RPD for Serial Dilution for Mercury was outside control limits for sample MP18119-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

SDG F72921:

- *For Batch MP18141* - RPDs for Duplicate for Silver were outside control limits for sample MP18141-D1. RPD was acceptable due to low duplicate and sample concentrations.
- RPDs for Serial Dilution for Beryllium, Cadmium, Chromium, Lead, Nickel, Zinc were outside control limits for sample MP18141-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- RPDs for Serial Dilution for Mercury was outside control limits. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

SDG F72905:

- RPD for Duplicate for Silver was outside control limits for sample MP18138-D1. RPD was acceptable due to low duplicate and sample concentrations.
- RPDs for Serial Dilution for Arsenic, Selenium, Silver, Chromium, Nickel, Zinc were outside control limits for sample MP18138-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- RPD for Duplicate for Mercury was outside control limits for sample MP18120-D1. RPD acceptable due to low duplicate and sample concentrations.
- RPD for Serial Dilution for Mercury was outside control limits for sample MP18137-SD1. Percent difference was acceptable due to low initial sample concentration (< 50 times IDL).

SDG F72905:

- *Batch MP18168* - RPDs for Duplicate for Zinc, Antimony, Cadmium were outside control limits for sample MP18168-D1. High RPD due to possible sample nonhomogeneity.
- RPDs for MSD for Antimony, Chromium, Copper, Lead, Nickel, Zinc were outside control limits. High RPD due to possible sample nonhomogeneity.
- RPDs for Serial Dilution for Antimony, Cadmium, Chromium, Lead, Nickel, Zinc were outside control limits for sample MP18168-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- *Batch MP18137* - RPD for Serial Dilution for Mercury was outside control limits for sample MP18151-SD1. Percent difference is acceptable due to low initial sample concentration (< 50 times IDL).

SDG F72881:

- *Batch MP18094* - RPD for Serial Dilution for Mercury was outside control limits for sample MP18094-SD1. Percent difference is acceptable due to low initial sample concentration (< 50 times IDL).

SDG F72879:

- RPD for Serial Dilution for Mercury was outside control limits for sample MP18094-SD1. Percent difference is acceptable due to low initial sample concentration (< 50 times IDL).

SDG F72880:

- *Batch MP18125* - RPDs for Duplicate for Copper, Selenium, Silver were outside control limits. High RPD due to possible sample nonhomogeneity.
- RPD for MSD for Lead was outside control limits for sample MP18125-S2. High RPD due to possible sample nonhomogeneity.
- RPDs for Serial Dilution for Antimony, Beryllium, Cadmium, Selenium, Chromium, Copper, Nickel, Zinc were outside control limits for sample MP18125-SD1. Percent difference acceptable due to the low initial sample concentration (< 50 times IDL).

3.2. Accuracy

3.2.1. Volatile Organic Compounds (SW-846 Method 8260B)

The surrogates, LBS/LBSD, and MS/MSD percent recoveries were generally within acceptable limits with the following exceptions:

SDG F72882:

- MS and/or MSD Recovery(s) for 1,2-Dichloroethane, 2-Hexanone, 4-Methyl-2-pentanone, Acetone, Methyl ethyl ketone, Bromoform, Chlorobenzene, Dibromochloromethane, Styrene, trans-1,3-Dichloropropene are outside control limits. The corresponding recoveries for the LBS were within acceptable limits and there were no detections of the analyte in the related field samples; therefore, the data was not impacted and no data was flagged.

SDG F72921:

- *Batch OP32584* - MS and/or MSD Recoveries for 4-Nitrophenol, Benzoic Acid, Phenol were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were within acceptable limits and there were no detections of the analyte in the related field samples; therefore, the data was not impacted and no data was flagged.
- MS/MSD Recoveries for 4-Nitrophenol, Phenol were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were within acceptable limits and the data was not affected.

SDG F72944:

- MS and/or MSD Recoveries for Bromoform, Dibromochloromethane, Styrene, trans-1,3-Dichloropropene, Xylene (total) were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were within acceptable limits and there were no detections of the analyte in the related field samples; therefore, the data was not impacted and no data was flagged.

SDG F72944:

- *For Batch VG2427* - Blank Spike Recovery for Tetrachloroethylene was outside control limits. Biased high, but not detected in the associated samples.
- MS and/or MSD Recoveries for cis-1,2-Dichloroethylene, Methyl bromide, Methylene chloride were outside control limits. The only analytes that were detected were Methylene chloride, but these were in the MB, so no additional flags were assigned.
- *For Batch VH2306* - MS Recoveries for 2-Hexanone, 4-Methyl-2-pentanone, Benzene, Bromoform, cis-1,2-Dichloroethylene, Methyl bromide, trans-1,2-Dichloroethylene were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were within acceptable limits and there were no detections of the analyte in the related field samples; therefore, the data was not impacted and no data was flagged.
- Matrix Spike Duplicate Recovery(s) for 2-Hexanone, Acetone, Bromoform, Methyl ethyl ketone are outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were within acceptable limits and there were no detections of the analyte in the related field samples; therefore, the data was not impacted and no data was flagged.

SDG F72905:

- MSD Recoveries for 1,1,2-Trichloroethane, 2-Hexanone, 4-Methyl-2-pentanone, Bromoform, trans-1,3-Dichloropropene were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were within acceptable limits and there were no detections of the analytes in the related field samples; therefore, the data was not impacted and no data was flagged.

- LBS/MS/MSD recoveries for Chloroethane, Methyl bromide, and Vinyl chloride were outside control limits. Recovered high, but not detected in the samples, data integrity not adversely affected.

SDG F72972:

- MS and/or MSD Recoveries for cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBSD/LBS were within acceptable limits and there were no detections of the analytes in the related field samples; therefore, the data was not impacted and no data was flagged.

SDG F72949:

- Blank Spike Recoveries for 2-Hexanone, 4-Methyl-2-pentanone were outside control limits. Biased high, but not detected in the samples, therefore, data integrity was not adversely affected.

SDG F72879:

- *Batch VH2297* - BS/MS/MSD Recovery for Methylene chloride was outside control limits. Biased high, but not detected in the samples, therefore, data integrity not adversely affected.
- Matrix Spike Recoveries for 1,1,2-Trichloroethane, 2-Hexanone, 4-Methyl-2-pentanone, Bromoform, Dibromochloromethane, Ethylbenzene, Methyl ethyl ketone, Styrene, trans-1,3-Dichloropropene, Xylene (total) were outside control limits. There were no detections of the analytes in the related field samples; therefore, the data was not impacted and no data was flagged.
- Matrix Spike Duplicate Recoveries for 2-Hexanone, 4-Methyl-2-pentanone, Acetone, Bromoform, cis-1,3-Dichloropropene, Dibromochloromethane, Methyl ethyl ketone, Styrene, trans-1,3-Dichloropropene, Xylene (total) were outside control limits. Probable cause due to matrix interference. There were no detections of the analytes in the related field samples except Acetone; therefore, this sample was the only one flagged "J".

SDG F72880:

- *Batch VG2420* - MS and/or MSD Recoveries for Bromoform and trans-1,3-Dichloropropene were outside control limits. Probable cause due to matrix interference. See Blank Spike for method performance in clean matrix. There were no detections of the analytes in the related field samples; therefore, the data was not impacted and no data was flagged.
- *Batch VH2298* - MSD Recoveries for 1,2-Dichloroethane, 2-Hexanone, 4-Methyl-2-pentanone, Acetone, Bromoform, Chlorobenzene, Dibromochloromethane, Methyl ethyl ketone, Methylene chloride, Styrene, trans-1,3-Dichloropropene were outside control limits. Probable cause due to matrix interference. There were no detections of the analytes in the related field samples; therefore, the data was not impacted and no data was flagged.

3.2.1. Total Petroleum Hydrocarbons (SW-846 Method 8015/TX1005)

Most surrogates, LBS/LBSD, and MS/MSD percent recoveries were generally within acceptable limits with the following exceptions:

- For SDG F72880, MS & MSD Recoveries for TPH (>C12-C28) were outside control limits. Probable cause due to matrix interference. The data for this analyte for the

corresponding samples were flagged as “J”, estimated (two samples – SSC-05 & SSD-04).

3.2.2. Semi-volatile Organic Compounds (SW-846 Method 8270C)

The surrogates, LBS/LBSD, and MS/MSD percent recoveries were generally within acceptable limits with the following exceptions:

SDG F72882:

- MS and/or MSD Recoveries for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol, Benzoic acid, Hexachlorocyclopentadiene, Isophorone were outside control limits. Probable cause due to matrix interference. The LBS/LBSD recoveries were all within the acceptable range; therefore, there were no flags assigned to the data.

SDG F72980:

- MS and/or MSD Recoveries for 4-Nitrophenol and Phenol were outside control limits. Probable cause due to matrix interference. There were no detections of the analytes in the related field samples; therefore, the data was not impacted and no data was flagged.

SDG F72879:

- MS and/or MSD Recoveries for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol, Hexachlorocyclopentadiene, Isophorone were outside control limits. Probable cause due to matrix interference. The only samples with detections of these analytes were already flagged as “J”, therefore no additional flags were added.

3.2.1. Herbicides (SW-846 Method 8151A)

The surrogates, LBS/LBSD, and MS/MSD percent recoveries were generally within acceptable limits with the following exceptions.

SDG F72905:

- MS Recovery for Dichloroprop was outside control limits. Dilution was required due to matrix interference. There were no detections in the associated samples, so no flags were assigned.

SDG F72905:

- RPD for MSD for 2,4-DB was outside control limits. Probable cause due to sample homogeneity. There were no detections in the associated samples, so no flags were assigned.

SDG F72880:

- MS and/or MSD Recoveries for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol, Hexachlorocyclopentadiene, Isophorone were outside control limits. Probable cause due to matrix interference. There were no detections in the associated samples, so no flags were assigned.

3.2.2. PCBs (SW-846 Method 8082)

The surrogates, LBS/LBSD, and MS/MSD percent recoveries were generally within acceptable limits with the following exceptions.

SDG F72948:

- MS/MSD Recovery for Aroclor 1260 was outside control limits. Probable cause due to matrix interference. The LBS/LBSD recoveries were all within the acceptable range; therefore, there were no flags assigned to the data.

SDG F72948:

- MS/MSD Recovery for Aroclor 1016 was outside control limits. Probable cause due to matrix interference. The Blank Spike/LBS/LBSD recoveries were all in control, and there were no detections in the related field samples, therefore, no additional flags were assigned to the data.
- MS/MSD Recovery for Aroclor 1260 was outside control limits due to high level in sample relative to spike amount. The Blank Spike/LBS/LBSD recoveries were all in control, therefore, no additional flags were assigned to the data.

SDG F72948:

- MSD Recovery for Aroclor 1260 was outside control limits. Probable cause due to matrix interference. There were no detections of the analyte in the field samples, therefore, no additional flags were assigned.

SDG F72880:

- MSD Recovery for Aroclor 1260 was outside control limits. Probable cause due to matrix interference. The LBSD recoveries were all within the acceptable range; therefore, there were no flags assigned to the data.

3.2.3. PP Metals (SW-846 Method 6010B, 7471A & 7470A)

Surrogates, LBS/LBSD, and MS/MSD percent recoveries were generally within acceptable limits with the following exceptions:

SDG F72882:

- *For Batch MP18117* - MS/MSD Recoveries for Antimony, Cadmium, Copper, Nickel, Thallium were outside control limits. Spike recoveries indicate possible matrix interference and/or sample nonhomogeneity. The data for these analytes for the corresponding sample were flagged as “J”, estimated.

SDG F72921:

- *For Batch MP18141* - MS/MSD Recoveries for Selenium, Antimony were outside control limits. Spike recovery indicates possible matrix interference due to high level in sample relative to spike amount. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged.
- Matrix Spike Recoveries for Chromium, Copper, Nickel, Zinc, and Mercury were outside control limits. Spike amount low relative to the sample amount. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged.
- MS/MSD Recovery for Mercury was outside control limits. Spike recovery indicates possible matrix interference. There were no detections in the field samples, so no flags were assigned.

SDG F72944:

- *For Batch MP18146* – MS/MSD Recoveries for Antimony, Arsenic, Lead, Selenium, Thallium were outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- MS Recovery for Zinc was outside control limits. Spike amount low relative to the sample amount. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged.

SDG F72905:

- MS/MSD Recoveries for Antimony and Copper were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged.

SDG F72905:

- *For Batch MP18168* - MS and/or MSD Recovery(s) for Arsenic, Selenium, Thallium, Antimony, Chromium, Copper, Nickel, Zinc were outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity. The corresponding recoveries for the LBS/LBSD were all within acceptable limits; therefore, the data was not impacted and no data was flagged.
- Matrix Spike Recoveries for Lead and Zinc were outside control limits. Spike amount low relative to the sample amount. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged.

SDG F72881:

- *For Batch MP18094* - MSD Recovery for Mercury was outside control limits. Probable cause due to matrix interference. All field samples with detections of Mercury already had “J” flags, therefore, no additional flags were assigned.

SDG F72881:

- MSD Recovery for Mercury was outside control limits. Probable cause due to matrix interference. All field samples with detections of Mercury already had “J” flags, therefore, no additional flags were assigned.

SDG F72880:

- MSD Recoveries for Antimony, Cadmium, Chromium, & Nickel were outside control limits. Probable cause due to matrix interference. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged.
- MS Recoveries for Lead and Zinc were outside control limits. Spike amount low relative to the sample amount. The corresponding recoveries for the LBS were all within acceptable limits; therefore, the data was not impacted and no data was flagged..

3.3. Representativeness

In general, laboratory sample receipt forms indicate that all samples arrived at the lab intact, with proper labeling, properly preserved, at or below the required cooler temperatures, and custody seals intact. There were a few instances of the COC not exactly matching the bottle labels, but the lab easily determined the correct notations and made the corrections with their data.

3.3.1. Volatile Organic Compounds (SW-846 Method 8260B)

All chemical analyses were reported with holding times that met the method requirements.

All method blanks were free of contamination with the following exceptions:

- Methylene Chloride was detected in the Method Blanks for the following batches:
 - VG2415 detected at 10.6 ug/L
 - VH2298 detected at 10.7 ug/L
 - VH2304 detected at 5.8 ug/L
 - VG2426 detected at 10.6 ug/L
 - VH2427 detected at 7.1J ug/L

- VH2306 detected at 12.3 ug/L
- VH2308 detected at 6.1J ug/L
- VH2307 detected at 5.6J ug/L
- VK1938 detected at 6.5J ug/L
- VG2420 detected at 8.1 ug/L
- The corresponding field samples that were greater than 10X the Method Blank concentrations were flagged as “B”, and all field samples that were less than 10X the Method Blank were flagged “UB”, non-detect.

No analytes were detected in the Trip Blanks.

It was indicated that a few samples in SDG F72972 were not preserved to a pH <2 with the reported results being considered the minimum values. There were no reported detected analytes other than Chloroform, Acetone and Methylene Chloride, and these were already flagged as estimated, “J”, so no additional flags were added.

3.3.2. Semi-volatile Organic Compounds (SW-846 Method 8270C)

Laboratory sample receipt forms indicate that all samples arrived at the lab intact with proper labeling. All chemical analyses were reported with holding times that met the method requirements. There were no target analytes detected in the method blanks.

3.3.3. PCBs (SW-846 Method 8082)

Laboratory sample receipt forms indicate that all samples arrived at the lab intact with proper labeling. All chemical analyses were reported with holding times that met the method requirements. There were no target analytes detected in the method blanks.

SDG F72879:

- For Aroclor 1260 and Aroclor 1254, there were some values that were estimated due to the presence of multiple overlapping Aroclor patterns.

3.3.4. Total Petroleum Hydrocarbons (SW-846 Method 8015)

Laboratory sample receipt forms indicate that all samples arrived at the lab intact and with proper labeling. All chemical analyses were reported with holding times that met the method requirements. There were no target analytes detected in the method blanks.

3.3.5. PP Metals (SW-846 Method 6010B, 7471A & 7470A)

Laboratory sample receipt forms indicate that all samples arrived at the lab intact and with proper labeling. All chemical analyses were reported with holding times that met the method requirements. There were no target analytes detected in the method blanks. The reporting limits in several SDGs were elevated due to matrix interferences. This was most likely due to high levels of dissolved solids in the water samples – the samples were grab samples and were not filtered, with visible suspended solids in the sample containers.

4. Completeness

A completeness of over 90% has been demonstrated and, therefore, project goals have been satisfied.

5. Comparability

There were no quality assurance (QA) samples collected during this investigation; therefore, comparability cannot be evaluated based on comparing QA and QC samples. A National Environmental Laboratory Accreditation Program (NELAP) certified lab was used and there are no indications that another laboratory would find different results for the data.

6. Technical Summary

In general, the analytical data produced from the collected samples are useful for their intended purpose as stated by the data quality objectives in the QAPP and Work Plan.

There were instances of MS/MSD RPD calculations exceeding the prescribed control limits for some constituents and some MS/MSD percent recoveries outside of acceptable limits. Some of these did lead to flagged associated data as “J”, estimated. All field duplicate results were within project-specified limits for the detected analytes. The Serial Dilution for some metals were out of QC limits, however, they were acceptable due to low initial sample concentrations (< 50X IDL). There were some MS/MSD and surrogated recoveries that exceeded acceptable limits, but some were due to dilution and were not flagged and for others, there were none of the analytes found in the associated field samples, therefore, they were not flagged. It was also indicated that a few samples were not preserved to a pH <2 with the reported results being considered the minimum values. The detected analytes in the associated field samples were flagged as estimated – “J”. There were several instances of Methylene Chloride, a common lab contaminant, found in the Method Blanks, with several samples flagged “U”, not detected, or “B”, found in the blank. For some PCBs, there were some values that were estimated due to the presence of multiple overlapping Aroclor patterns.

Table 2 –Duplicate Sample Comparison

Parameter	Units	Result	Qual	Result	Qual	Percent Difference
		FIN-SSB04 D		FIN-SSB04		
Aroclor 1260	ug/kg	13.5	J	17.3	J	21.97%
Antimony	mg/kg	0.31	J	0.28	J	10.71%
Arsenic	mg/kg	6.4		5.9		8.47%
Beryllium	mg/kg	0.7		0.7		0.00%
Cadmium	mg/kg	0.59		0.65		9.23%
Chromium	mg/kg	16.9		16.9		0.00%
Copper	mg/kg	41.4		38.5		7.53%
Lead	mg/kg	174		180		3.33%
Mercury	mg/kg	0.3		0.33		9.09%
Nickel	mg/kg	13.5		12.5		8.00%
Selenium	mg/kg	0.49	J	0.36	J	36.11%
Silver	mg/kg	0.33	J	0.35	J	5.71%
Zinc	mg/kg	345		316		.18%
Benzo(a)anthracene	ug/kg		U	130	J	
Benzo(a)pyrene	ug/kg		U	136	J	
Benzo(b)fluoranthene	ug/kg		U	225		
Benzo(g,h,i)perylene	ug/kg		U	101	J	
Benzo(k)fluoranthene	ug/kg		U	69.9	J	
Chrysene	ug/kg		U	158	J	
Fluoranthene	ug/kg		U	278		
Indeno(1,2,3-cd)pyrene	ug/kg		U	104	J	
Phenanthrene	ug/kg		U	94.8	J	
Pyrene	ug/kg		U	205		
		FIN-SSD07-D		FIN-SSD07		
Arsenic	mg/kg	4.4	J	4.5	J	2.22%
		FIN-SSA10-D		FIN-SSA10		
Arsenic	mg/kg	4.5		3.8	J	18.42%

Parameter	Units	Result	Qual	Result	Qual	Percent Difference
		FIN-SB05-GW01-D		FIN-SB05-GW01		
TPH (C10-C28)	mg/l	0.285		0.534		46.63%
Arsenic	ug/l	41.3		43.2		4.40%
Beryllium	ug/l	4		4		0.00%
Cadmium	ug/l	1.3	J	1.4	J	7.14%
Chromium	ug/l	71.4		71		0.56%
Copper	ug/l	70		71.6		2.23%
Lead	ug/l	122		123		0.81%
Mercury	ug/l	0.13	J	0.2	J	35.00%
Nickel	ug/l	102		101		0.99%
Silver	ug/l	1.3	J		U	
Thallium	ug/l	0.81	J	0.84	J	3.57%
Zinc	ug/l	199		201		1.00%
Acenaphthene	ug/l	2.2	J	2.8	J	21.43%
Dibenzofuran	ug/l	1.3	J	1.7	J	23.53%
Fluoranthene	ug/l	0.97	J		U	
Fluorene	ug/l	1.8	J	2.3	J	21.74%
Phenanthrene	ug/l	3.8	J	4.4	J	13.64%
		FIN-SSA06-D		FIN-SSA06		
Arsenic	mg/kg	3.3		4.7		29.79%
		FIN-SSE14-D		FIN-SSE14		
Arsenic	mg/kg	3.9		3.9		0.00%
		FIN-SSD11-D		FIN-SSD11		
Aroclor 1260	ug/kg		U	929		
Arsenic	mg/kg	11.6		14.3		18.88%
Lead	mg/kg	2890		4310		32.95%
		FIN-SSF15-D		FIN-SSF15		
Arsenic	mg/kg	8		8.1		1.23%

Note: If both the normal field sample and duplicate sample were “U”, undetected, then the data was not included.

Shaded duplicate pairs indicate exceedance of the control limits.

Appendix E

Site Photographs



Photograph 1. Looking at the marker flag located at the SSA01 sampling location in the northeast portion of the Site.



Photograph 2. Looking southwest at the drilling crew setting the temporary well casing at SB02 in the northeast portion of the Site.



Photograph 3. Looking at the marker flag for soil sample SSD03 in the northern portion of the Fintube Building Complex.



Photograph 4. Looking at one of the locations sampled for the SSD03 surface soil sample in the northern portion of the Fintube Building Complex.



Photograph 5. Looking at one of the locations sampled for the SSD04 surface soil sample in the northern portion of the Fintube Building Complex.



Photograph 6. Looking at one of the locations sampled for the SSD04 surface soil sample in the northern portion of the Fintube Building Complex.



Photograph 7. Looking at one of the locations sampled for the SSD04 surface soil sample in the northern portion of the Fintube Building Complex.



Photograph 8. Looking at the surface soil sampling location of SSE07 in the western portion of the Site.



Photograph 9. Looking at the location sampled for the SSD05 surface soil sample southwest of the Fintube Building.



Photograph 10. Looking at a field team member using a pick axe to get through asphalt at the SSD09 soil sampling location.



Photograph 11. Looking at the drilling crew drilling SB08 located east of the Evan's Building.



Photograph 12. A field team member sampling SSC11.



Photograph 13. Looking at the oily stains sampled for the SSD11 soil sample location.



Photograph 14. Looking at the cracks and crevices sampled for the SSD10 soil sampling location.



Photograph 15. Looking at the floor drain sampled for the SSE12 soil sampling location.



Photograph 16. Looking at the floor drain, cracks, and crevices sampled for the SSE13 soil sampling location.



Photograph 17. Looking at the oily spots and wood bricks sampled for the SSD12 soil sampling location.



Photograph 18. Looking at the oily spots and wood bricks sampled for the SSD13 soil sampling location.



Photograph 19. Looking at the stain and crevices sampled for the SSF15 soil sampling location.



Photograph 20. Looking at the cracks, crevices, and floor drain sampled for the SSF14 soil sampling location.



Photograph 21. Looking at one of the cracks sampled for the SSF14 soil sampling location.



Photograph 22. Looking at the cracks and crevices sampled for the SSD14 soil sampling location.



Photograph 23. Looking at the pits, cracks and crevices sampled for the SSC14 soil sampling location.



Photograph 24. Looking at the soil boring from SB01 in the northwest portion of the Site.



Photograph 25. Looking at the soil boring from SB01 in the northwest portion of the Site.



Photograph 26. Looking at the soil boring from SB01 in the northwest portion of the Site.

Appendix F

Asbestos Inspection Report

Asbestos Summary

Dean Swain, an EPA accredited and Oklahoma Department of Labor (ODOL) licensed asbestos inspector/management planner, and Marc Becknell, an EPA accredited and ODOL licensed asbestos inspector, completed the inspections on April 16, 2010.

The site to be investigated is the Fintube Building Complex located on the west side of North Lansing Avenue, north of East Independence, and south of East Archer Street with a physical address of 186 N. Lansing in the city of Tulsa, state of Oklahoma. The subject site consists of two separate building complexes. The first complex is the Fintube Facility which consists of six (6) buildings most constructed with red iron support beams and columns and corrugated metal siding and roofs. The interiors are not finished except for a small office and locker area of the main building. These areas are finished with combination sheetrock, brick, and concrete block walls, drop-in ceiling tile panels covering corrugated metal roof, and some vinyl flooring materials.

The second complex is the Evans facility which consists of five (5) separate buildings most constructed with red iron support beams and columns and corrugated metal siding and roofs. The interiors are not finished except for a small office area of the main building. This area is finished with sheetrock walls, drop-in ceiling tiles, and vinyl flooring materials.

The Oklahoma Department of Environmental Quality (ODEQ) has adopted EPA's National Emissions of Hazardous Air Pollutants (NESHAP) regulation under OAC 252:100, 41-15 and has been delegated authority in the state of Oklahoma for its enforcement. Section 61.145(a) of Federal EPA regulation states that prior to commencement of the demolition or renovation of a facility, a thorough inspection of the affected part or parts of a facility is required to determine the presence of all asbestos, including Category I and Category II non-friable, and friable Asbestos Containing Material (ACM). Therefore, the objective of this project was to perform an asbestos survey to determine the presence of all asbestos containing material from within the subject site for NESHAP compliance as well as Worker Protection.

Upon conclusion of the on-site inspection, there were sixteen (16) homogeneous areas identified for sample collection and analysis from the Fintube facility and seven (7) homogeneous areas from the Evans facility. The collected samples were sent to a NVLAP laboratory for analysis under chain of custody protocol. A total of 21 samples were analyzed from the 16 homogeneous areas within Fintube facility and nine (9) samples were analyzed from the seven (7) homogeneous areas within Evans facility.

Upon completion of the on-site inspection and review of laboratory results, the following asbestos containing materials were identified above the EPA threshold of one percent (1%):

Category I non-friable materials

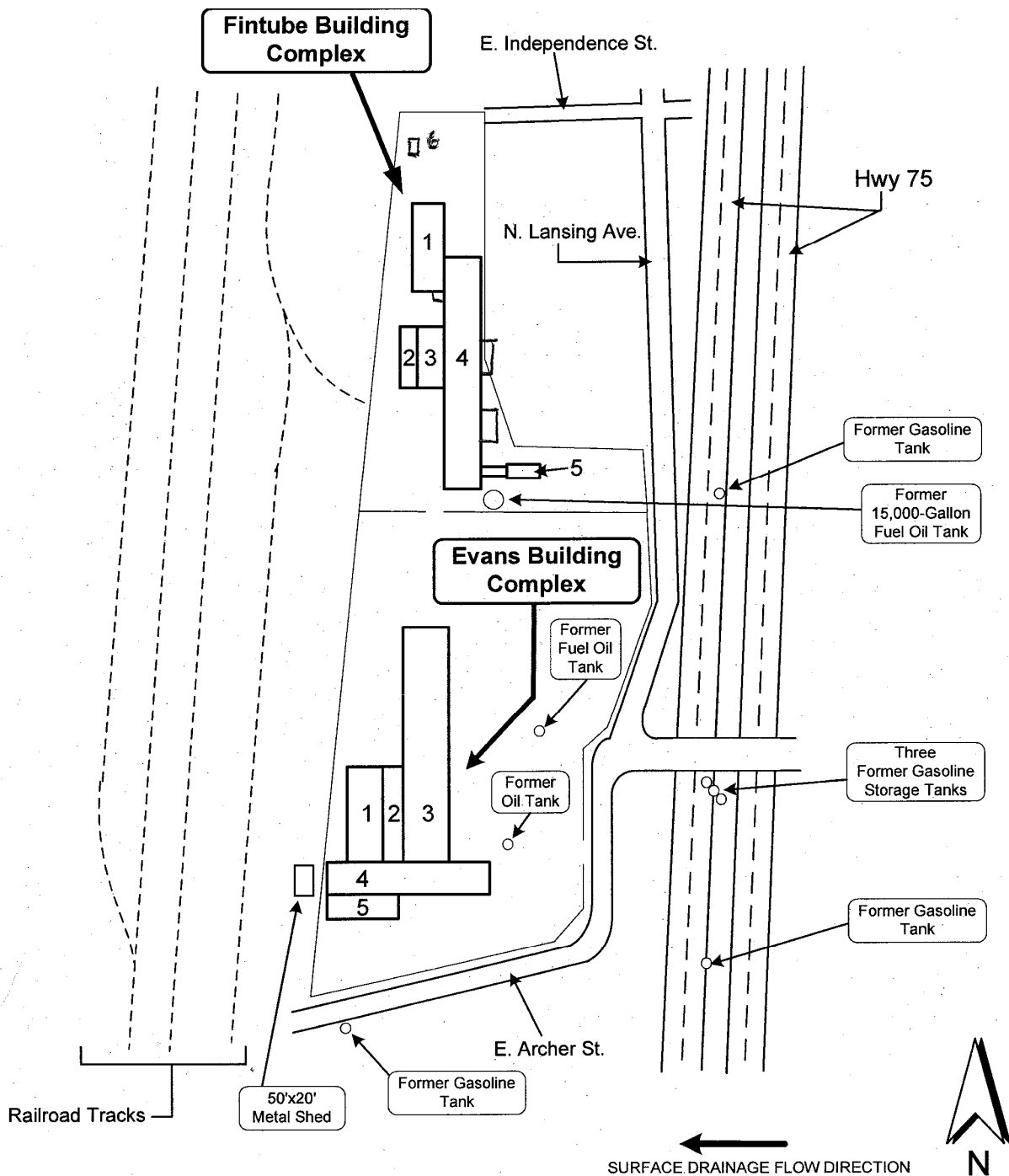
The following Category I non-friable materials were identified from the inspection process and are currently classified as Category I non-friable materials:

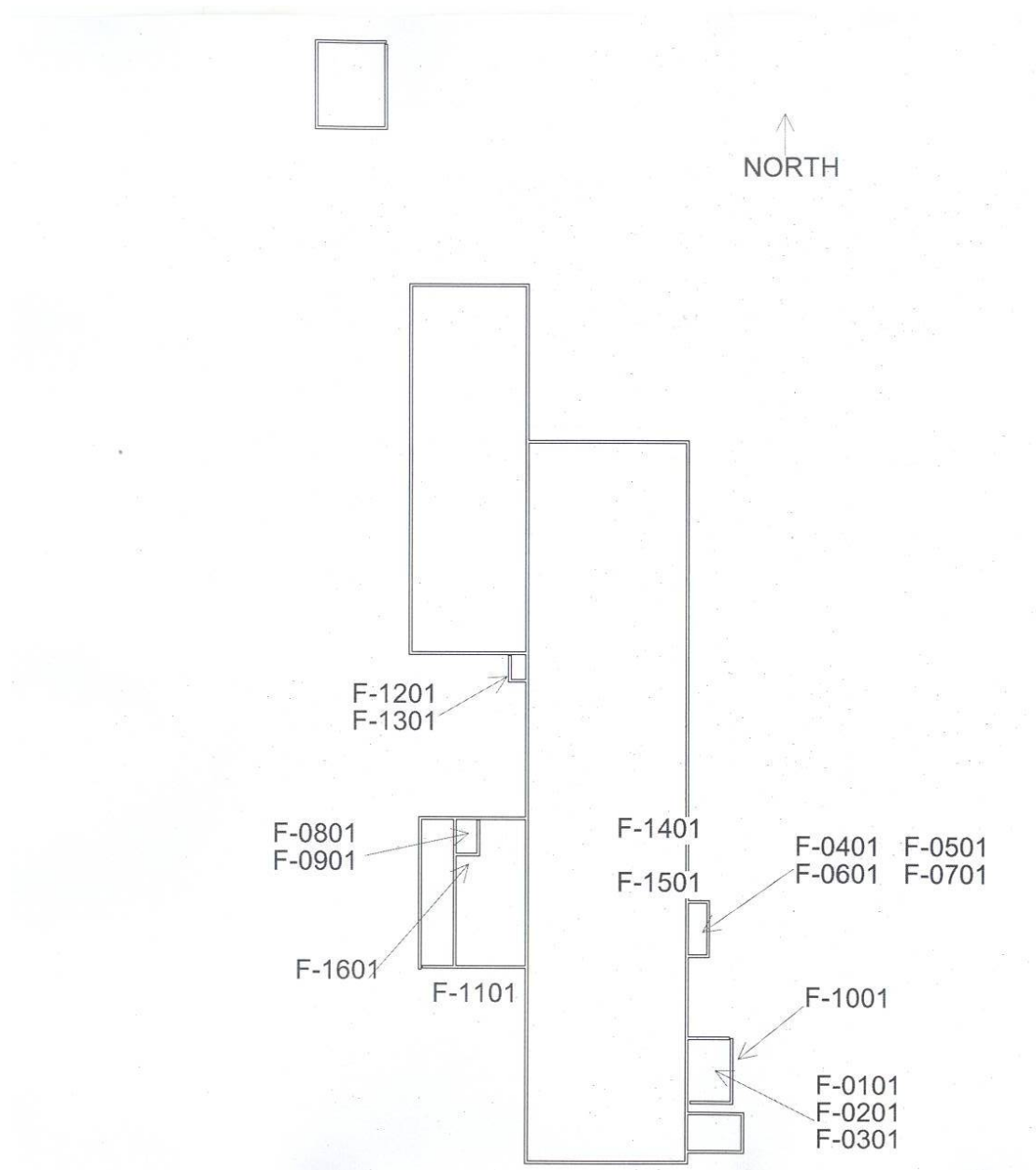
- None

Category II non-friable materials

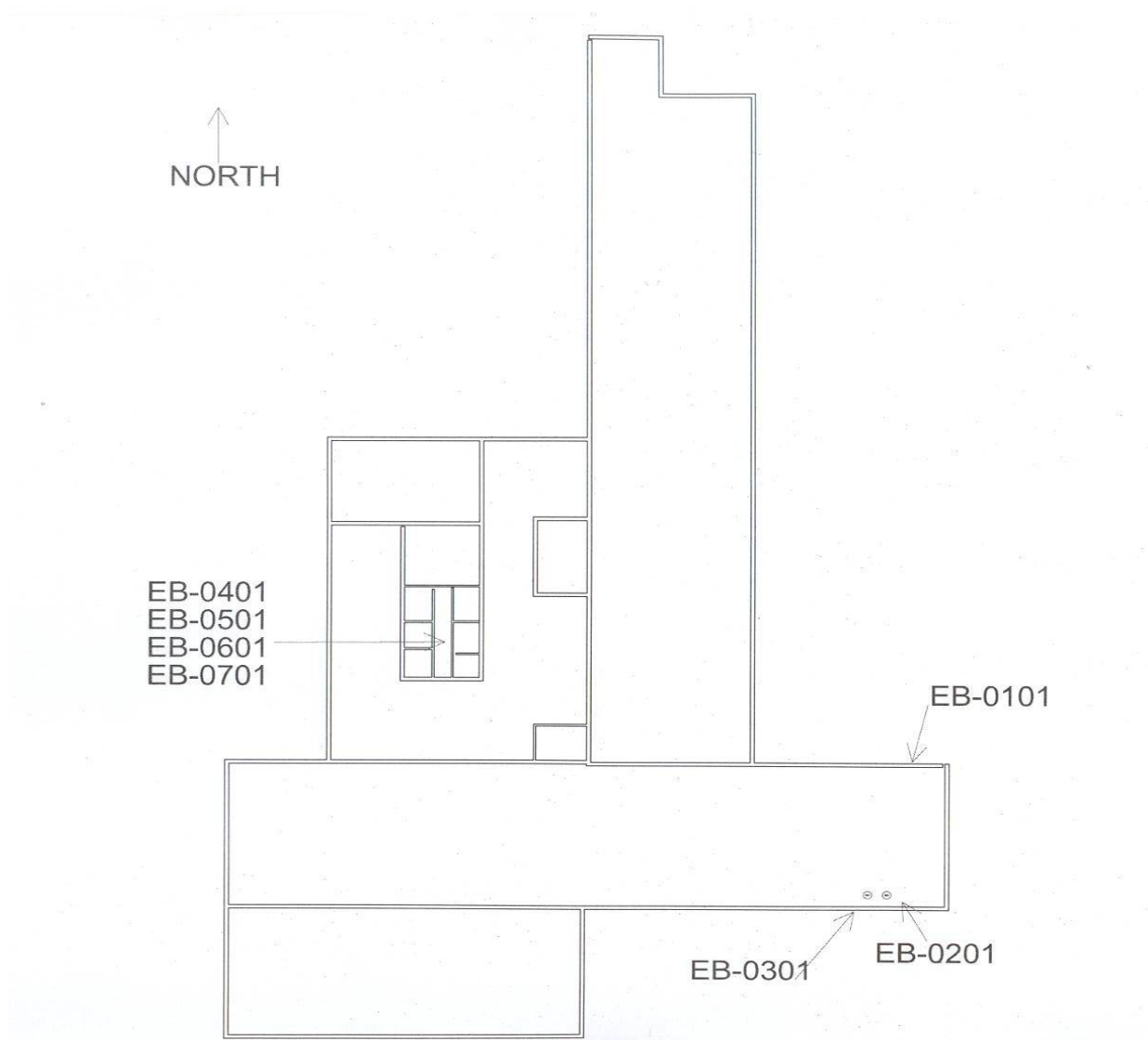
APPENDIX A

FIGURES AND SITE PLANS





Fintube Complex



Evans Complex

APPENDIX B

SUMMARY DATA CHART

Table 1. Summary of Asbestos Results

Sample No.	Material Description	Friability	Condition	Sample Location	Asbestos Content	Quantity	NESHAP Class
Fintube Buildings Complex							
F-0101	Hard pack fittings	Yes	Damaged	Locker room main building	10% Chrysotile	10 LF 10 SF	RACM
F-0102	Hard pack fittings	Yes	Damaged	Locker room main building	10% Chrysotile		RACM
F-0201	Beige 12"x12" vinyl floor tile	Non	Damaged	Locker room main building	None Detected	1000 SF	N/A
F-0301	White 2'.x4' ceiling tiles	Yes	Damaged	Locker room main building	None Detected	1000 SF	N/A
F-0401	Gray 12"x12" vinyl floor tile	Non	Damaged	Quality Control Office	None Detected	195 SF	N/A
F-0501	White 12"x12" ceiling tiles	Yes	Damaged	Quality Control Office	None Detected	20 SF	N/A
F-0601	Drywall/tape/joint wall compound	Non	Damaged	Quality Control Office	None Detected	500 SF	N/A
F-0701	White 2'.x4' ceiling tiles	Yes	Damaged	Quality Control Office	None Detected	195 SF	N/A
F-0801	White ceiling panels	Non	Damaged	West warehouse office	None Detected	150 SF	N/A
F-0901	Tan 12"x12" vinyl floor tile	Non	Damaged	West warehouse office	None Detected	150 SF	N/A
F-1001	Exterior stucco finish	Non	Damaged	Exterior of locker room	None Detected	100 SF	N/A
F-1002	Exterior stucco finish	Non	Damaged	Exterior of locker room	None Detected		N/A
F-1003	Exterior stucco finish	Non	Damaged	Exterior of locker room	None Detected		N/A
F-1101	Window caulking	Non	Damaged	Exterior windows	<1% Chrysotile	150 SF	N/A
F-1201	Attic insulation	Yes	TSI	Small exterior bathroom	None Detected	40 SF	N/A
F-1301	Ceiling panels	Non	Damaged	Small exterior bathroom	None Detected	40 SF	N/A
F-1401	Black/tan duct insulation	Yes	Damaged	Warehouse main building	None Detected	200 SF	N/A
F-1501	Silver/yellow duct insulation	Yes	Damaged	Warehouse main building	None Detected	100 SF	N/A
F-1601	Plaster wall	Non	Damaged	Warehouse west office area	None Detected	200 SF	N/A
F-1602	Plaster wall	Non	Damaged	Warehouse west office area	None Detected	200 SF	N/A
F-1603	Plaster wall	Non	Damaged	Warehouse west office area	None Detected	200 SF	N/A

Sample No.	Material Description	Friability	Condition	Sample Location	Asbestos Content	Quantity	NESHAP Class
Evans Buildings Complex							
EB-0101	Window putty	Non	Damaged	Exterior window putty	None Detected	200 SF	N/A
EB-0201	Small pipe insulation	TSI	Damaged	Southeast corner of main warehouse	20% Chrysotile	19 LF	RACM
EB-0301	Three common wrapped pipes	TSI	Damaged	Southeast corner of main warehouse	35% Chrysotile	25 LF	RACM
EB-0302	Three common wrapped pipes	TSI	Damaged	Southeast corner of main warehouse	35% Chrysotile		RACM
EB-0303	Three common wrapped pipes	TSI	Damaged	Southeast corner of main warehouse	35% Chrysotile		RACM
EB-0401	Drywall/joint wall compound/tape	Non	Misc	Office	None Detected	1200 SF	N/A
EB-0501	Gray 12"x12" vinyl floor tile	Non	Misc	Office	None Detected	285 SF	N/A
EB-0601	Yellow kickboard glue	Non	Misc	Office	None Detected	100 SF	N/A
EB-0701	White 2'x4' ceiling tiles	Yes	Misc	Office	None Detected	2760 SF	N/A

Cat. I = Category I non-friable material

Cat. II = Category II non-friable material

HA = Homogeneous area

LF = Linear feet

N/A = Not Applicable, material is non-asbestos or less than one percent asbestos

RACM = Regulated asbestos containing material

SF = Square feet

VFT = vinyl floor tile

APPENDIX C
SITE PHOTOGRAPHS

Fintube Complex



Homogeneous area 01 & 02



Homogeneous area 03



Homogeneous area 04



Homogeneous area 05



Homogeneous area 06



Homogeneous area 07



Homogeneous area 08



Homogeneous area 09



Homogeneous area 10



Homogeneous area 11



Homogeneous area 12 & 13



Homogeneous area 14



Homogeneous area 15



Homogeneous area 16

Evans Complex



Homogeneous area 1



Homogeneous area 2



Homogeneous area 3



Homogeneous area 4



Homogeneous area 5



Homogeneous area 7

APPENDIX D

LICENSE CERTIFICATES

Oklahoma Department of Labor

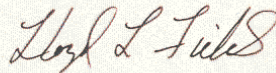


Robert Dean Swain

has filed in the office of the Commissioner of Labor of the State of Oklahoma
an application for a Limited Asbestos Contractor's license for

AHERA MANAGEMENT PLANNER

Now, therefore, The Commissioner of Labor of the State of Oklahoma, by virtue of
the power vested in him by law hereby issues to the
applicant license No. **OK-MP134900**.



LLOYD L. FIELDS
Commissioner of Labor

January 05, 2010

Date of Issuance

EXPIRES: January 04, 2011

Oklahoma Department of Labor certifies that

Robert Dean Swain

License Number **134900**
is Licensed as
**Asbestos
Management Planner**



Issued **01/05/2010** Expire **01/04/2011**


Lloyd L. Fields
Commissioner of Labor

Weight **205**
Height **5.11**
Eyes **Hazel**
Hair **Black**

Oklahoma Department of Labor

FEE: \$25.00



Marc Becknell

has filed in the office of the Commissioner of Labor of the State of Oklahoma
an application for a Limited Asbestos Contractor's license for

AHERA INSPECTOR

Now, therefore, The Commissioner of Labor of the State of Oklahoma, by virtue of
the power vested in him by law hereby issues to the
applicant license No. OK159142.

Lloyd L. Fields

LLOYD L. FIELDS

Commissioner of Labor

January 08, 2010

Date of Issuance

EXPIRES: January 04, 2011

APPENDIX E

INSPECTOR DATA ASSESSMENT SHEETS, CHAIN OF CUSTODY AND LABORATORY ANALYSIS



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Polarized Light Microscopy Asbestos Analysis Report

Quantem Lab No. 181780
 Account Number: A389
 Date Received: 04/21/2010
 Received By: Sherrie Leftwich
 Date Analyzed: 04/23/2010
 Analyzed By: Joe Melton
 Methodology: EPA/600/R-93/116

Client: Environmental Hazard Control, Inc.
 6539 E. 31st Street, Suite 33
 Tulsa, OK 74145
 Project: Fintube Bldg
 Project Location: 186 N. Lansing
 Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	F-0101	Homogeneous	White Insulation	Asbestos Present Chrysotile 10	Cellulose 10 Glass Fiber 15	CaCO3
002	F-0102	Homogeneous	White Insulation	Asbestos Present Chrysotile 10	Cellulose 10 Glass Fiber 15	CaCO3
003	F-0201	Homogeneous	Beige Floor Tile	Asbestos Not Present	NA	Vinyl Quartz
No Mastic						
004	F-0301	Homogeneous	Yellow Ceiling Tile	Asbestos Not Present	Glass Fiber 85	Paint
005	F-0401	Homogeneous	Gray Floor Tile	Asbestos Not Present	NA	Vinyl Quartz
No Mastic						
006	F-0501	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 85	Paint
007	F-0601	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose 25 Glass Fiber <1	Gypsum

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Quantem is a NVLAP accredited TEM and PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any other agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.



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Methodology: EPA/600/R-93/116

Client:

Environmental Hazard Control, Inc.

6539 E. 31st Street, Suite 33

Tulsa, OK 74145

Project:

Fintube Bldg

Project Location:

186 N. Lansing

Project Number:

N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
No Joint Comp.						
008	F-0701	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Paint Perlite
009	F-0801	Homogeneous	Gray Ceiling Tile	Asbestos Not Present	Cellulose 85	Paint
010	F-0901	Homogeneous	Tan Floor Tile	Asbestos Not Present	NA	Vinyl Quartz
No Mastic						
011	F-1001	Homogeneous	Green Stucco	Asbestos Not Present	Cellulose <1	Quartz CaCO3
012	F-1002	Homogeneous	Green Stucco	Asbestos Not Present	Cellulose <1	Quartz CaCO3
013	F-1003	Homogeneous	Green Stucco	Asbestos Not Present	Cellulose <1	Quartz CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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Polarized Light Microscopy Asbestos Analysis Report

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 Methodology: EPA/600/R-93/116

Client: Environmental Hazard Control, Inc.
 6539 E. 31st Street, Suite 33
 Tulsa, OK 74145

Project: Fintube Bldg
 Project Location: 186 N. Lansing
 Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
014	F-1101	Homogeneous	White Window Glazing	Asbestos Present Chrysotile <1	NA	CaCO ₃
015	F-1201	Homogeneous	Brown Insulation	Asbestos Not Present	Cellulose 2 Glass Fiber 95	Inert
016	F-1301	Homogeneous	Brown Ceiling Tile	Asbestos Not Present	Cellulose 85	Paint
017	F-1401	Homogeneous	Tan Duct Insulation	Asbestos Not Present	Glass Fiber 95	Inert
018	F-1501	Homogeneous	Yellow Insulation	Asbestos Not Present	Glass Fiber 60	Tar
019	F-1601	Homogeneous	Tan Plaster	Asbestos Not Present	Cellulose <1 Animal Hair <1	Quartz CaCO ₃

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Quantem is a NVLAP accredited TEM and PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any other agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Polarized Light Microscopy Asbestos Analysis Report

Quantem Lab No. 181780

Account Number: A389

Date Received: 04/21/2010

Received By: Sherrie Leftwich

Date Analyzed: 04/23/2010

Analyzed By: Joe Melton

Methodology: EPA/600/R-93/116

Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Project: Fintube Bldg
Project Location: 186 N. Lansing
Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
020	F-1602	Homogeneous	Tan Plaster	Asbestos Not Present	Cellulose	<1 Quartz CaCO ₃
021	F-1603	Homogeneous	Tan Plaster	Asbestos Not Present	Cellulose Animal Hair	<1 Paint Quartz CaCO ₃


Joe Melton, Analyst

4/23/2010

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Quantem is a NVLAP accredited TEM and PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any other agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.

ENVIRONMENTAL HAZARD CONTROL, INC

 6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145

(918) 747-1330

FAX (918) 743-3961

TURNAROUND (Please Circle)

RUSH SAME DAY 24 HR 48 HR 5 DAY

181780

30A1

BILL TO:		PROJECT INFORMATION:				DISPOSAL			
NAME:	EHCI	PROJECT NAME:	FINTUBE BLDG			USEPA PLM 600R-93/116	TEM BULK	POINT COUNT 1000 pt.	LAB EHCI CUSTOMER (EXPLAIN) COMMENTS
ADDRESS:	A389	LOCATION:	186 N. LANSING						
CITY:		PROJECT NO:							
STATE:		CONTACT:							
ZIP:		PHONE NO:							
PHONE:		FAX NO:							
FAX:									
SAMPLED BY:		DEAN SWAIN							
LICENSE NO:		MADE BACKWELL							
SAMPLE NO:	SAMPLE DESCRIPTION	FRIABLE (YES/NO)	TSI SUR MISC	CONDITION: GOOD DAMAGED SIGNIFICANTLY	PLM 600R-93/116	TEM BULK	POINT COUNT 1000 pt.	LAB EHCI CUSTOMER (EXPLAIN) COMMENTS	
1 F-6101	LOCKER ROOM HAND PAUL FITTING	YES	TSI	DAMAGED	X			#10	
2 F-0102	LOCKER ROOM HAND PAUL FITTING	YES	TSI	DAMAGED	X				
3 F-0301	LOCKER ROOM 12x12 VFT w/ YELD	NW	MISC	DAMAGED	X			1000 SF	
4 F-0301	LOCKER ROOM 2x4 CT	YES	MISC	DAMAGED	X			1000 SF	
5 F-0401	QUANTITY CONTROL OFFICE	NW	MISC	DAMAGED	X			15x13	
6 F-0501	QUANTITY CONTROL OFFICE	YES	MISC	DAMAGED	X			20 SF	
7 F-0601	QLO - DRY WALL / JWL / TAPE	NW	MISC	DAMAGED	X				
8 F-0701	QLO - 2x4 CT	YES	MISC	DAMAGED	X			13x16	
9 F-0801	WEST OFFICE - CEILING PANELS	NW	MISC	DAMAGED	X			150 SF	
10 F-0901	WEST OFFICE - 12x12 VFT	NW	MISC	DAMAGED	X			150 SF	
11 F-1001	LOCKER ROOM BLDG - EXTERIOR STUD	NW	SUR	DAMAGED	X			100 SF	
12 1003	"	NW	SUR	"	X				
13 1003	"	NW	SUR	"	X				
14 F-1101	EXTERIOR WINDOW CAULKING	NW	MISC	DAMAGED	X				
15 F-1201	SMALL BATH - ATTIC INSULATION	YES	TSI	DAMAGED	X			40 SF	
16 F-1301	SMALL BATH - CEILING PANEL	NW	MISC	DAMAGED	X			40 SF	
Relinquished by:		Date:	Time:	Accepted By:	Date:	Time:			
Relinquished by:		4/26/2010		SKIDWICK	4/26/10	9:20			
Date Sampled:		4/16/2010	Analyzed By:		Date:				

Page 1 of 2

ENVIRONMENTAL HAZARD CONTROL, INC

6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145

(918) 747-1330

FAX (918) 743-3961

TURNAROUND (Please Circle)

RUSH SAME DAY 24 HR 48 HR 5 DAY

181780

3 DAY

BILL TO:		PROJECT INFORMATION:			DISPOSAL			
NAME:	EHCI	PROJECT NAME:	FINTUBS		USEPA PLM 600R-93/116	TEM BULK	400 POINT COUNT 1000 pt.	LAB EHCI CUSTOMER (EXPLAIN) COMMENTS
ADDRESS:	A389	LOCATION:	186 N. LANSING					
CITY:		PROJECT NO:						
STATE:		CONTACT:						
ZIP:		PHONE NO:						
PHONE:		FAX NO:						
FAX:		SAMPLED BY: DEAN SWAN						
		LICENSE NO: MARK BERKING						
SAMPLE NO:	SAMPLE DESCRIPTION	FRIABLE (YES/NO)	TSI SUR MISC	CONDITION: GOOD DAMAGED SIGNIFICANTLY				
17 F-1401	DUCT WARM INSULATION	YES	TSI	Damaged	X			
19 F-1501	DUCT WARM INSULATION	YES	TSI	Damaged	^			
19 F-1601	WEST OFFICE PLASTER WALL	NW	SUR	Damaged	X			20SE
20 1602	"	NW	SUR		X			
21 1603	"	NW	SUR		X			

Relinquished by:	Date:	Time:	Accepted By:	Date:	Time:
	4/16/2020		S. P. H. H. H.	4/16/20	9:20
Relinquished by:	Date:	Time:	Accepted By:	Date:	Time:
Date Sampled:	4/16/2020		Analyzed By:	Date:	

page 2 of 2



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Polarized Light Microscopy Asbestos Analysis Report

Quantem Lab No. 181783

Account Number: A389

Date Received: 04/21/2010

Received By: Sherrie Leftwich

Date Analyzed: 04/23/2010

Analyzed By: Joe Melton

Methodology: EPA/600/R-93/116

Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Project: Evans Bldg Complex

Project Location: N/A

Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	EB-0101	Homogeneous	Gray Window Glazing	Asbestos Not Present	Cellulose <1	CaCO3
002	EB-0201	Homogeneous	Beige Insulation	Asbestos Present Chrysotile 20	Cellulose 50	CaCO3 Inert
003	EB-0301	Homogeneous	Gray Insulation	Asbestos Present Chrysotile 35	Cellulose 5	Paint CaCO3
004	EB-0302	Homogeneous	Gray Insulation	Asbestos Present Chrysotile 35	Cellulose 5	Paint CaCO3
005	EB-0303	Homogeneous	Gray Insulation	Asbestos Present Chrysotile 35	Cellulose 5	Paint CaCO3
006	EB-0401	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose 40 Glass Fiber <1	Gypsum

No Joint Comp.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Polarized Light Microscopy Asbestos Analysis Report

Quantem Lab No. 181783

Account Number: A389

Date Received: 04/21/2010

Received By: Sherrie Leftwich

Date Analyzed: 04/23/2010

Analyzed By: Joe Melton

Methodology: EPA/600/R-93/116

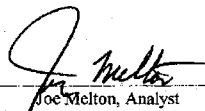
Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Project: Evans Bldg Complex

Project Location: N/A

Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
007	EB-0501	Homogeneous	Gray Floor Tile	Asbestos Not Present	NA	Vinyl Quartz
No Mastic						
008	EB-0601	Homogeneous	Yellow Cove Base Mastic	Asbestos Not Present	Cellulose	<1 Glue
009	EB-0701	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	40 Paint 20 Perlite


Joe Melton, Analyst

4/23/2010
Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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TURN AROUND (Please Circle)

TURNAROUND (Please Circle)
RUSH SAME DAY 24 HR. ~~48 HR.~~ 5 Day

(918) 747-1330
FAX (918) 743-3961

RUSH SAME DAY 24 HR. ~~48 HR.~~ 5 Day

RUSH SAME DAY 24 HR. ~~48 HR.~~ 5 Day

[illegible]

The following Category II non-friable materials were identified during the inspection process:

- None

Regulated Asbestos Containing Materials (RACM)

The following regulated asbestos containing materials were identified during the inspection process:

- Approximately 10 linear feet and 10 square feet of asbestos containing thermal system pipe fittings and floor debris located in locker room area of Fintube main building.
- Approximately 34 linear feet of asbestos containing thermal system pipe insulation located in main warehouse of Evans facility.

Management of asbestos

Asbestos is not always an immediate hazard. In fact, if asbestos can be maintained in good condition, it is recommended that it be left alone and periodic surveillance performed to monitor its condition. It is only when asbestos containing materials are disturbed for demolition or renovation purposes or the materials become damaged that it becomes a hazard. When the materials become damaged, the fibers separate and may then become airborne and exceed the Federal OSHA Permissible Exposure Limit of 0.1 fiber/cubic centimeter of air or the State of Oklahoma Permissible Exposure Limit of 0.01 fibers/cubic centimeter of air.

In the asbestos industry, the term 'friable' is used to describe asbestos that can be reduced to dust by hand pressure. 'Non-friable' means asbestos that is too hard to be reduced to dust by hand. Non-friable materials, such as Transite siding and floor tiles are not regulated by the State of Oklahoma provided it does not become friable or can be classified as RACM. Machine grinding, sanding and dry-buffing are ways of causing non-friable materials to become RACM.

In addition, there are no federal, state, or local laws that say asbestos has to be removed. It is only when the material can no longer be maintained in good condition and/or the airborne concentrations of asbestos are measured to be too high (above the Federal or State PEL), or when the building is to be demolished or renovated, that removal may become the only option.

In the State of Oklahoma, friable and RACM may only be removed by Licensed Asbestos Abatement Contractors, utilizing Licensed Workers and Supervisors. Oklahoma has always been one of the most stringent states in regulating the removal of asbestos containing materials and all projects are inspected by inspectors from the Oklahoma Department of Labor, Asbestos Division a minimum of three times.

All other non-friable materials that are not RACM can only be repaired, removed, or disturbed by workers who have had a minimum of 8-hours of OSHA Class II asbestos training and conducted under competent person supervision as stated in 29 CFR 1926.1101 (i.e. an EPA accredited asbestos supervisor level trained person).

Asbestos Abatement Recommendation and Cost Estimate

Since the building is scheduled for renovation we recommend a complete abatement of all ACM materials according to OSHA 29 CFR 1926.1101, EPA 40 CFR 61, Subpart M, and Oklahoma Department of Labor, Abatement of Friable Asbestos Materials Rules. The estimated cost for complete removal of said materials is as follows:

Item	Estimated Cost
Labor, Overhead, Profit	\$3,000.00
Project Design and Air Monitoring	\$2,500.00
Supplies and Materials	\$800.00
Disposal and Transportation	\$550.00
Scaffolding, special equipment	\$0.00
DEQ, ODOL Fees, or other regulating fees	\$400.00
Water, Electric, and Sewer	\$75.00
Equipment Rental	\$0.00
Miscellaneous	\$1,000.00
Total Cost	\$8,325.00

List of Appendices

Appendix A	Figures and Site Plans
Appendix B	Summary Data Chart
Appendix C	Site Photographs
Appendix D	License Certificates
Appendix E	Assessment Data Sheets/Chain of Custody Report and Lab Results

Acronyms

ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
EHCI	Environmental Hazard Control, Inc.
ODEQ	Oklahoma Department of Environmental Quality
ODOL	Oklahoma Department of Labor
OSHA	Occupational Safety and Health Administration
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NVLAP	National Voluntary Laboratory Accreditation Program
PACM	Presumed Asbestos Containing Materials
PLM	Polarized Light Microscopy
RACM	Regulated Asbestos Containing Material
SACM	Suspect asbestos-containing materials
TSI	Thermal system insulation
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

1. Introduction

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted ALL Consulting under Contract No. W912BV-08-D-2008, Task Order No. 0018, to conduct a representative asbestos survey of the Fintube Building Complex located on the west side of North Lansing Avenue, north of East Independence, and south of East Archer Street with a physical address of 186 N. Lansing in the city of Tulsa, state of Oklahoma. ALL Consulting subcontracted the onsite asbestos survey to Environmental Hazard Control, Inc.

This Representative Asbestos Survey Report summarizes the asbestos survey conducted April 16, 2010 of the Fintube Complex. This report has been prepared by a U.S. Environmental Protection Agency (USEPA) accredited and Oklahoma Department of Labor (ODOL) licensed asbestos inspector/management planner.

1.1 Site Location

The site is located on the west side of North Lansing Avenue, north of East Independence, and south of East Archer Street with a physical address of 186 N. Lansing in the city of Tulsa, state of Oklahoma.

1.2 Site Description

The subject site consists of two separate building complexes. The first complex is the Fintube Facility which consists of six (6) buildings most constructed with red iron support beams and columns and corrugated metal siding and roofs. The interiors are not finished except for a small office and locker area of the main building. These areas are finished with combination sheetrock, brick, and concrete block walls, drop-in ceiling tile panels covering corrugated metal roof, and some vinyl flooring materials.

The second complex is the Evans facility which consists of five (5) separate buildings most constructed with red iron support beams and columns and corrugated metal siding and roofs. The interiors are not finished except for a small office area of the main building. This area is finished with sheetrock walls, drop-in ceiling tiles, and vinyl flooring materials.

1.3 Objective

The Oklahoma Department of Environmental Quality (ODEQ) has adopted EPA's National Emissions of Hazardous Air Pollutants (NESHAP) regulation under OAC 252:100, 41-15 and has been delegated authority in the state of Oklahoma for its enforcement. Section 61.145(a) of Federal EPA regulation states that prior to commencement of the demolition or renovation of a facility, a thorough inspection of the affected part or parts of a facility is required to determine the presence of all asbestos, including Category I and Category II non-friable, and friable Asbestos Containing Material (ACM). Therefore, the objective of this project was to perform an asbestos survey to determine the presence of all asbestos containing material from within the subject site for NESHAP compliance as well as Worker Protection.

The sampling protocol used for collection of these samples was in accordance with rules set forth in EPA Asbestos Hazard Emergency Response Act (AHERA) legislation under 40 CFR 763.86.

2. Inspection

Dean Swain, an EPA accredited and Oklahoma Department of Labor (ODOL) licensed asbestos inspector/management planner, and Marc Becknell, an EPA accredited and ODOL licensed asbestos inspector, completed the inspections on April 16, 2010. Copies of licensing certificates are available in **Appendix 'D'**.

During the on-site inspection, the physical characteristics of suspect asbestos-containing materials (SACM) were visually assessed based on homogeneous areas. Homogeneous areas are areas uniform by color, texture, construction, date of application, and in general appearance. Each observed homogeneous area of suspect ACM was assigned a unique identification number, described, and then measured.

For purposes of renovation and demolition, homogeneous areas of suspect asbestos-containing materials can be further classified according to NESHAP rules under 40 CFR 61.Subpart M, by whether the material is friable ACM, Category I Non-friable ACM, or Category II Non-friable ACM.

Friable ACM is defined by NESHAP rules as any material containing more than one percent (1%) asbestos as determined by Polarized Light Microscopy, that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure.

Category I Non-friable ACM is defined by NESHAP rules as any asbestos-containing packings, gasket, construction mastic, resilient floor covering or asphalt roofing product that contains more than one percent (1%) asbestos as determined by Polarized Light Microscopy.

Category II Non-friable ACM is defined by NESHAP rules as any material, excluding Category I non-friable ACM, containing more than one percent (1%) asbestos as determined by Polarized Light Microscopy, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

2.1 Bulk Sample Collection

Upon conclusion of the on-site inspection, there were sixteen (16) homogeneous areas identified for sample collection and analysis from the Fintube facility and seven (7) homogeneous areas from the Evans facility. Site maps showing sample and homogeneous area locations are available in **Appendix 'A'**. Copies of all the site photographs can be found in **Appendix 'C'**. A copy of the inspector's chain of custody reports and assessment data sheets are available in **Appendix 'E'**.

In order to protect building occupants and the inspectors, the following sample collection protocol was used:

- Wear appropriate PPE (site conditions will dictate whether inspectors need to wear half mask air purifying respirators and protective suits).
- Label containers with unique ID number. Use rigid containers if shipping, if not ziploc bags.

- Mark location of sample on floor plan and record sample number on chain of custody. Perform physical assessment of material on data sheet. Take pictures.
- Spray area with water, if necessary.
- Extract sample using a clean knife, cork borer, or other similar device. Be sure to penetrate all layers.
- Place sample in container and tightly seal it.
- Wipe exterior of the container with wet wipe.
- Clean your hands and tools with wet wipes and wet mop floor or HEPA vacuum if necessary.
- Fill sample hole with caulking compound on friable materials and/or spray with an encapsulant.
- Repeat step above at each sample location.
- Discard protective clothing, wet wipes, and rags, cartridge filters, and drop cloths in a labeled disposal bag.

The inspection and assessment was based on the following terms:

- Homogeneous areas are areas that are uniform by color, texture, construction/application date, and general appearance.
- Functional space: Room use or area use.

The following was used to describe the current Condition Assessment:

- Significantly damaged: Material damaged, blistered, deteriorated, water stained over at least one tenth (10%) of its total area.
- Damaged: Material is damaged, blistered, deteriorated, water stained less than one tenth (10%) of its total area.
- Good: No visible damaged or deterioration.

The number of samples collected per homogeneous area was determined using the AHERA protocol in 40 CFR 763.86 as follows:

Surfacing materials - material that is sprayed or troweled on wall, ceilings, or support columns for fireproofing, acoustical, or even decorative purpose.

- Less than 1000 ft² = Minimum 3
- From 1000-5000 ft² = Minimum 5
- Greater than 5000 ft² = Minimum 7

TSI Materials - thermal system insulation (TSI) materials applied to tanks, boiler, pipes or other structural component for an insulating purpose.

- May omit areas of obvious fibrous glass, foam glass, rubber, and styrofoam from sampling. Areas that have mastic on seams, suspect out jacketing, or hard pack fittings will be sampled.
- At least three samples must be collected from each homogeneous area of TSI, plus an additional sample from each patched area of less than 6 linear feet.
- Fittings require a sufficient amount to determine positive or negative nature.
- Pull samples from damaged areas first, then exposed ends or areas missing jacketing.

Miscellaneous Materials - all other materials that are not TSI or surfacing materials.

- May assume and document as such.
- A sufficient amount of samples to determine negative or positive nature.
- Collect samples from inconspicuous locations.
- Materials such as cementitious asbestos exhaust flues or vibration dampening cloths should not be sampled because it will degrade the integrity of the materials. These materials will be assumed asbestos containing materials and documented.

The personal protective equipment used was based on jobsite hazards. A list of possible personal protective equipment worn is as follows:

- Half mask or full-face air-purifying respirator.
- Safety Eye glasses.
- Disposable clothing.
- Hearing protection.
- Hard hats.
- Gloves
- Boots
- Fall protection

2.2 Bulk Sample Analysis

Samples were collected from each homogeneous area according to the protocol listed above and in 40 CFR 763 Appendix E and sent under chain-of-custody to Quantem Laboratories, a National Voluntary Laboratory Accreditation Program (NVLAP) laboratory, for analysis. All samples were analyzed using Polarized Light Microscopy (PLM) in accordance with EPA Method 600R-93/116. If the presence of asbestos was confirmed, the percentage of asbestos containing material versus non-asbestos containing material was visually estimated by a combination of Polarized Light and Stereo Microscope.

Upon conclusion of the on-site inspection, there were sixteen (16) homogeneous areas identified for sample collection and analysis from the Fintube facility and seven (7)

homogeneous areas from the Evans facility. A total of 21 samples were analyzed from the 16 homogeneous areas within Fintube facility and nine (9) samples were analyzed from the seven (7) homogeneous areas within Evans facility.

Please see **Appendix 'E'** for a copy of complete laboratory results and **Appendix 'B'** for a summary chart and NESHAP classification of positive areas.

3. Conclusions

Upon completion of the on-site inspection and review of laboratory results, the following asbestos containing materials were identified above the EPA threshold of one percent (1%) as determined by Polarized Light Microscopy:

Category I non-friable materials

The following Category I non-friable materials were identified from the inspection process and are currently classified as Category I non-friable materials:

- None

Category II non-friable materials

The following Category II non-friable materials were identified during the inspection process:

- None

Regulated Asbestos Containing Materials (RACM)

The following regulated asbestos containing materials were identified during the inspection process:

- Approximately 10 linear feet and 10 square feet of asbestos containing thermal system pipe fittings and floor debris located in locker room area of Fintube main building.
- Approximately 34 linear feet of asbestos containing thermal system pipe insulation located in main warehouse of Evans facility.

Management of asbestos

Asbestos is not always an immediate hazard. In fact, if asbestos can be maintained in good condition, it is recommended that it be left alone and periodic surveillance performed to monitor its condition. It is only when asbestos containing materials are disturbed for demolition or renovation purposes or the materials become damaged that it becomes a hazard. When the materials become damaged, the fibers separate and may then become airborne and exceed the Federal OSHA Permissible Exposure Limit of 0.1 fiber/cubic centimeter of air or the State of Oklahoma Permissible Exposure Limit of 0.01 fibers/cubic centimeter of air.

In the asbestos industry, the term 'friable' is used to describe asbestos that can be reduced to dust by hand pressure. 'Non-friable' means asbestos that is too hard to be reduced to dust by hand. Non-friable materials, such as Transite siding and floor tiles are not regulated by the

State of Oklahoma provided it does not become friable or can be classified as RACM. Machine grinding, sanding and dry-buffing are ways of causing non-friable materials to become RACM.

In addition, there are no federal, state, or local laws that say asbestos has to be removed. It is only when the material can no longer be maintained in good condition and/or the airborne concentrations of asbestos are measured to be too high (above the Federal or State PEL), or when the building is to be demolished or renovated, that removal may become the only option.

In the State of Oklahoma, friable and RACM may only be removed by Licensed Asbestos Abatement Contractors, utilizing Licensed Workers and Supervisors. Oklahoma has always been one of the most stringent states in regulating the removal of asbestos containing materials and all projects are inspected by inspectors from the Oklahoma Department of Labor, Asbestos Division a minimum of three times.

All other non-friable materials that are not RACM can only be repaired, removed, or disturbed by workers who have had a minimum of 8-hours of OSHA Class II asbestos training and conducted under competent person supervision as stated in 29 CFR 1926.1101 (i.e. an EPA accredited asbestos supervisor level trained person).

Asbestos Abatement Recommendation and Cost Estimate

Since the building is scheduled for renovation we recommend a complete abatement of all ACM materials according to OSHA 29 CFR 1926.1101, EPA 40 CFR 61, Subpart M, and Oklahoma Department of Labor, Abatement of Friable Asbestos Materials Rules. The estimated cost for complete removal of said materials is as follows:

Item	Estimated Cost
Labor, Overhead, Profit	\$3,000.00
Project Design and Air Monitoring	\$2,500.00
Supplies and Materials	\$800.00
Disposal and Transportation	\$550.00
Scaffolding, special equipment	\$0.00
DEQ, ODOL Fees, or other regulating fees	\$400.00
Water, Electric, and Sewer	\$75.00
Equipment Rental	\$0.00
Miscellaneous	\$1,000.00
Total Cost	\$8,325.00

4. Exclusions

ALL Consulting and Environmental Hazard Control, Inc. performance was in keeping with the standard of care common for such NESHAP inspections, but the report shall not constitute a warranty against losses or costs associated with unidentified ACM at any surveyed site due to lack of access or sample constraint. It should be recognized that the potential exists for ACM to be present in areas obstructed from view or inaccessible areas, such as areas behind 'hard' walls or ceilings, buried underground, or areas within highly discretionary spaces that could not be identified without implementing a more destructive sampling technique or putting the inspector in undue danger. This survey was limited to visible and accessible areas only.

Appendix G

Lead Based Paint Inspection Report

Lead Based Paint

1. Introduction

Under the Lead-Based Paint Poison Protection Act (LBPPA) and the US Consumer Product Safety Commission (CPSC), the permissible limit for lead in paint manufacturing was set at 600 parts per million (ppm) in 1978. The US Environmental Protection Agency (EPA) and the Department of Housing and Urban Development (HUD) define lead-based paint for 'target housing and child occupied facilities' as paint containing lead levels equal to or greater than 5,000 ppm. As the LBPPA/CPSC definition pertains to paint manufacture and the EPA/HUD definition governs paint already applied to surfaces, the difference in the definitions does not result in any real-world conflicts. However, the Occupational Safety and Health Administration (OSHA) does not define lead-based paint, nor does it acknowledge any intrinsically safe levels of lead in paint. Painted surfaces that contain lead but do not meet either definition of lead-based paint are still governed by OSHA worker protection regulations. These regulations require exposure monitoring, respiratory protection, employee training, and medical monitoring (including blood tests).

In addition, the US EPA Resource Conservation and Recovery Act (RCRA) regulations set the limit of leachable lead in lead-containing waste at 5 parts per billion (ppb). Leachable lead means the amount of lead likely to leach from the waste into the surrounding soil of a landfill. This level is established by an analytical method called the toxicity characteristic leachate procedure (TCLP). Lead containing waste that equals or exceeds the RCRA limit must be transported to a hazardous waste treatment, storage, or disposal facility.

Lead containing waste shown to have a total lead content below 100 ppm cannot reach or exceed the EPA RCRA limit for leachable lead, and need not be analyzed by TCLP. Lead containing waste shown to have a total lead content equal to or exceeding 100 ppm may exceed the RCRA standard, and must be analyzed by TCLP prior to disposal.

2. Inspection

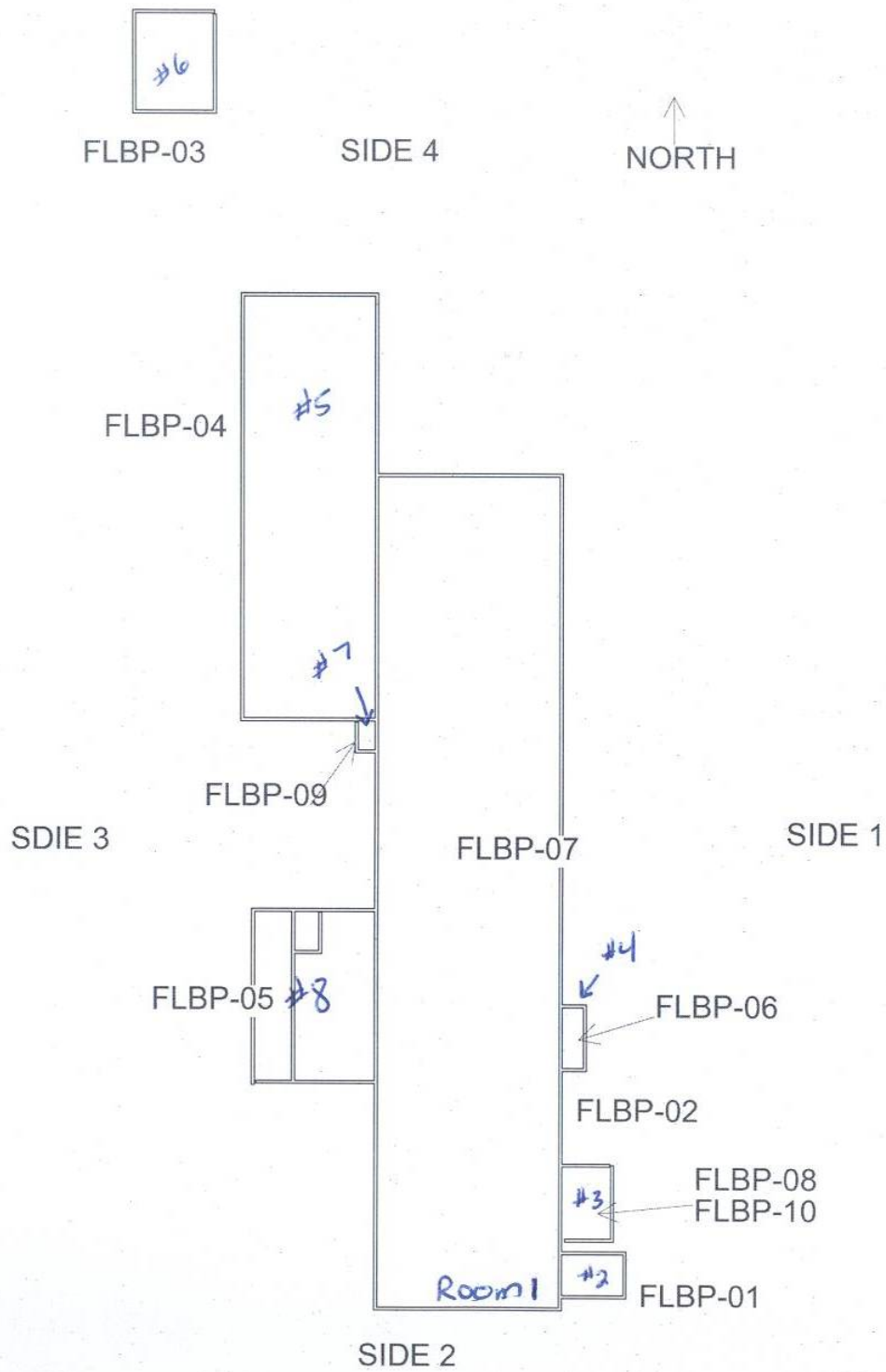
Attached herewith are the analytical results of the testing for lead-based paint (LBP) from the Fintube building complex located at 186 North Lansing in the city of Tulsa, state of Oklahoma. The lead-based paint (LBP) inspections were conducted following the protocol established in the work plan and performed by Dean Swain, an accredited and licensed LBP Inspector/Risk Assessor #OKRASR11105. The work plan called for XRF testing of major painted surfaces throughout the subject site totaling approximately 100 assays and not more than ten (10) paint chip samples.

A complete list of all assay tests results for LBP is provided herein. Results are organized and shown in actual sequence by sample number. All assay tests for LBP were taken with a Scitec XRF-MAP 4 Spectrum Analyzer Serial Number M41254 in the Unlimited Mode. **Lead reported in the L-shell refers to surface paint, while lead reported in the K-shell refers to any substrate layers of paint.**

A complete list of all paint chip results for LBP is also provided herein. Results are organized and shown in actual sequence collected. All paint chip samples were analyzed by Quantem Laboratories using EPA Method 7420, Atomic Absorption. Lead is reported in parts per million (ppm).

APPENDIX A

SUMMARY OF RESULTS, SITE MAP, & LABORATORY RESULTS



Fintube Building Complex

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33
TULSA, OK 74145-

Daily Calibration

Project	Site	Date	Time	K-Shell mg/cm2	K-Avg mg/cm2	L-Shell mg/cm2	L-Avg mg/cm2	Scanner #	Instr #	Oper
Starting Calibration		04/16/10	08:00A	1.478	1.480	1.488	1.502	M41254	254	1715
Starting Calibration		04/16/10	08:01A	1.470		1.502		M41254	254	1715
Starting Calibration		04/16/10	08:02A	1.489		1.502		M41254	254	1715
Starting Calibration		04/16/10	08:04A	1.475		1.521		M41254	254	1715
Starting Calibration		04/16/10	08:05A	1.490		1.496		M41254	254	1715
2921	0001	04/16/10	09:12A	1.480	1.480	1.485	1.485	M41254	254	1715
2921	0001	04/16/10	09:13A	1.467	1.467	1.468	1.468	M41254	254	1715
2921	0001	04/16/10	09:14A	1.490	1.490	1.485	1.485	M41254	254	1715
2921	0001	04/16/10	15:28P	1.476	1.476	1.480	1.480	M41254	254	1715
2921	0001	04/16/10	15:29P	1.486	1.486	1.490	1.490	M41254	254	1715
2921	0001	04/16/10	15:30P	1.496	1.496	1.482	1.482	M41254	254	1715

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145-

Customer: ALL Consulting

Project Name: Fintube
Tulsa, OK

Site Name:

XRF and Lab Results

Action Level 1.000 mg /cm2 Lab 5000ppm

Total Assays Reported

73

#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6496	0001							0.000 X	0.000 X	0		
6497	0001	Calibration	*	*	*	*	*	1.480 K	1.485 L	254		Pos
6498	0001	Calibration	*	*	*	*	*	1.467 K	1.468 L	254		Pos
6499	0001	Calibration	*	*	*	*	*	1.490 K	1.485 L	254		Pos
6500	0001	Exterior	1	1	Wall	Metal	Poor	0.842 K	0.645 L	254		Neg
6501	0001	Exterior	2	1	Wall	Metal	Poor	0.884 K	0.642 L	254		Neg
6502	0001	Exterior	3	1	Wall	Plaster	Intact	0.248 K	0.310 L	254		Neg
6503	0001	Exterior	4	1	Wall	Brick	Intact	0.426 K	0.287 L	254		Neg
6504	0001	Exterior	1	1	Door	Metal	Poor	2.268 K	2.462 L	254	17105	Pos
6505	0001	Exterior	1	1	Door Frame	Metal	Poor	1.462 K	1.084 L	254		Pos
6506	0001	Exterior	2	3	Wall	Metal	Poor	0.222 K	0.188 L	254	363	Neg
6507	0001	Exterior	2	4	Wall	Metal	Poor	0.648 K	0.444 L	254		Neg
6508	0001	Exterior	3	1	Door	Metal	Poor	0.278 K	0.366 L	254		Neg
6509	0001	Exterior	3	1	Door Frame	Metal	Poor	0.197 K	0.200 L	254		Neg
6510	0001	Exterior	3	1	Downspout	Metal	Poor	0.347 K	0.441 L	254		Neg
6511	0001	Exterior	3	4	Door	Metal	Poor	0.301 K	0.149 L	254		Neg
6512	0001	Exterior	3	4	Door frame	Metal	Poor	0.245 K	0.222 L	254		Neg
6513	0001	Exterior	4	2	Door	Metal	Poor	0.178 K	0.367L	254		Neg
6514	0001	Exterior	4	2	Door Frame	Metal	Poor	0.336 K	0.247 L	254		Neg
6515	0001	Exterior	4	2	Wall	Brick	Fair	0.197 K	0.267 L	254		Neg
6516	0001	Exterior	4	4	Wall	Brick	Fair	0.364 K	0.222 L	254		Neg

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145-

Customer: ALL Consulting

Project Name: Fintube
Tulsa, OK

Site Name:

XRF and Lab Results

Action Level 1.000 mg /cm2 Lab 5000ppm

Total Assays Reported

73

#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6517	0001	Exterior	4	1	Door	Metal	Poor	0.347 K	0.166 L	254		Neg
6518	0001	Exterior	4	1	Door frame	Metal	Poor	0.402 K	0.318 L	254		Neg
6519	0001	Exterior	1	4	Wall	Metal	Poor	4.167 K	0.320 L	254		Pos
6520	0001	Exterior	5	1	Wall	Metal	Poor	0.248 K	0.310 L	254	780	Neg
6521	0001	Exterior	5	4	Wall	Metal	Poor	0.464 K	0.251 L	254		Neg
6522	0001	Exterior	5	4	Door	Metal	Poor	0.317 K	0.413 L	254		Neg
6523	0001	Exterior	5	4	Door frame	Metal	Poor	0.287 K	0.199 L	254		Neg
6524	0001	Exterior	5	3	Wall	Metal	Poor	0.541 K	0.287 L	254		Neg
6525	0001	Exterior	5	2	Wall	Metal	Poor	0.247 K	0.310 L	254		Neg
6526	0001	Exterior	6	1	Wall	Metal	Fair	0.186 K	0.100 L	254		Neg
6527	0001	Exterior	6	2	Wall	Metal	Fair	0.162 K	0.087 L	254	1189	Neg
6528	0001	Exterior	6	3	Wall	Metal	Fair	0.310 K	0.208 L	254		Neg
6529	0001	Exterior	6	4	Wall	Metal	Fair	0.188 K	0.204 L	254		Neg
6530	0001	Exterior	5	1	Red iron beam	Metal	Poor	3.456 K	2.344 L	254		Pos
6531	0001	Exterior	8	4	Wall	Metal	Fair	0.764 K	0.672 L	254		Neg
6532	0001	Exterior	8	3	Wall	Metal	Fair	0.463 K	0.502 L	254	3131	Neg
6533	0001	Exterior	8	2	Wall	Metal	Fair	0.348 K	0.310 L	254		Neg
6534	0001	Exterior	7	3	Door frame	Metal	Poor	0.468 K	0.564 L	254		Neg
6535	0001	Exterior	7	3	Wall	Brick	Poor	0.247 K	0.364 L	254	1958	Neg
6536	0001	Exterior	8	4	Door	Metal	Poor	4.267 K	3.642 L	254		Pos
6537	0001	Exterior	8	4	Door frame	Metal	Poor	0.846 K	1.205 L	254		Pos

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145-

Customer: ALL Consulting

Project Name: Fintube
Tulsa, OK

Site Name:

XRF and Lab Results

Action Level 1.000 mg /cm2		Lab 5000ppm		Total Assays Reported								73
#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6538	0001	Exterior	1	3	Wall	Metal	Poor	0.648 K	0.467 L	254		Neg
6539	0001	Exterior	1	2	Wall	Metal	Poor	0.462 K	0.224 L	254		Neg
6540	0001	Exterior	1	2	Door	Metal	Poor	2.346 K	2.100 L	254		Pos
6541	0001	Exterior	1	2	Door frame	Metal	Poor	0.348 K	0.462 L	254		Neg
6542	0001	Paint booth	2	1	Wall	Metal	Poor	0.247 K	0.210 L	254		Neg
6543	0001	Paint booth	2	2	Wall	Metal	Poor	0.246 K	0.197 L	254		Neg
6544	0001	Paint booth	2	3	Wall	Metal	Poor	0.310 K	0.064 L	254		Neg
6545	0001	Paint booth	2	4	Wall	Metal	Poor	0.103 K	0.084 L	254		Neg
6546	0001	Paint booth	2	4	Ceiling	Metal	Poor	0.230 K	0.300 L	254		Neg
6547	0001	Locker Room	3	1	Wall	Concrete	Intact	0.452 K	0.206 L	254		Neg
6548	0001	Locker Room	3	2	Wall	Concrete	Intact	0.426 K	0.344 L	254	<118	Neg
6549	0001	Locker Room	3	3	Wall	Concrete	Intact	0.500 K	0.317 L	254		Neg
6550	0001	Locker Room	3	4	Wall	Concrete	Intact	0.347 K	0.222 L	254		Neg
6551	0001	Locker Room	3	2	Door	Metal	Fair	0.127 K	0.209 L	254		Neg
6552	0001	Locker Room	3	2	Door frame	Metal	Fair	0.307 K	0.087 L	254	3160	Neg
6553	0001	QC Office	4	1	Wall	Sheetrock	Fair	0.087 K	-0.164 L	254		Neg
6554	0001	QC Office	4	2	Wall	Sheetrock	Fair	0.147 K	0.216 L	254	<119	Neg
6555	0001	QC Office	4	3	Wall	Brick	Fair	0.216 K	0.036 L	254		Neg
6556	0001	QC Office	4	4	Wall	Sheetrock	Fair	0.000 K	0.000 L	254		Neg
6557	0001	QC Office	4	3	Door	Metal	Fair	0.212 K	0.300 L	254		Neg
6558	0001	QC Office	4	3	Ceiling	Wood	Fair	0.178 K	0.144 L	254		Neg

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33
TULSA, OK 74145-

XRF and Lab Results

Customer: ALL Consulting

Project Name: Fintube

Site Name:

Action Level 1,000 mg /cm2				Lab 5000ppm				Total Assays Reported				73
#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6559	0001	Main building	1	1	Red iron I-beam	Metal	Fair	12.126 K	8.047 L	254	131896	Pos
6560	0001	Main building	1	3	Red iron I-beam	Metal	Fair	8.256 K	6.666 L	254		Pos
6561	0001	Main building	1	1	Stairs	Metal	Fair	6.648 K	7.623 L	254		Pos
6562	0001	Main building	1	1	Stairs handrail	Metal	Fair	4.486 K	3.467 L	254		Pos
6563	0001	West office	1	1	Wall	Sheetrock	Fair	0.248 K	0.047 L	254		Neg
6564	0001	West office	1	2	Wall	Sheetrock	Fair	0.217 K	0.314 L	254		Neg
6565	0001	West office	1	3	Wall	Sheetrock	Fair	0.000 K	-0.217 L	254		Neg
6566	0001	West office	1	4	Wall	Sheetrock	Fair	-0.146 K	-0.244 L	254		Neg
6567	0001	West office	1	2	Wall	Plaster	Poor	0.178 K	0.269 L	254		Neg
6568	0001	West building	8	1	Red iron I-beam	Metal	Fair	4.623 K	3.306 L	254		Pos
6569	0001	West building	8	3	Wall	Brick	Poor	0.486 K	0.462 L	254		Neg



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Environmental Chemistry Analysis Report

QuanTEM Set ID: 181784
Date Received: 04/21/10
Received By: Barbara Holder
Date Sampled:
Time Sampled:
Analyst: EC
Date of Report: 4/23/2010

Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Acct. No.: A389

Project: Fintube
Location: Tulsa, OK
Project No.: All-

AIHA ID: 101352

QuanTEM ID	Client ID	Matrix	Parameter	Results	Reporting Limits	Units	Date/Time Analyzed	Method
001	FLBP-01	Paint	Lead	363	114	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
002	FLBP-02	Paint	Lead	17105	117	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
003	FLBP-03	Paint	Lead	1189	114	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
004	FLBP-04	Paint	Lead	780	115	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
005	FLBP-05	Paint	Lead	3131	114	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
006	FLBP-06	Paint	Lead	<119	119	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
007	FLBP-07	Paint	Lead	131896	114	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
008	FLBP-08	Paint	Lead	3160	118	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
009	FLBP-09	Paint	Lead	1958	116	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
010	FLBP-10	Paint	Lead	<118	118	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Environmental Chemistry Analysis Report

Quantem Set ID: 181784
Date Received: 04/21/10
Received By: Barbara Holder
Date Sampled:
Time Sampled:
Analyst: EC
Date of Report: 4/23/2010

Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Acct. No.: A389

Project: Pintube

Location: Tulsa, OK

Project No.: All-

AIHA ID: 101352

Quantem ID	Client ID	Matrix	Parameter	Results	Reporting Limits	Units	Date/Time Analyzed	Method
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Authorized Signature: _____

Eric Caves, Analyst

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.

Supplemental Report QAQC Results

QA ID: 7498
Test: Lead

Date: 4/23/2010
Matrix: Paint

Lab Number: 181784
Approved By: Eric Caves
Date Approved: 4/23/2010

Notes:

Blank Data:

Type of Blank	Blank Value
Initial	0
Continuing	0
Final	0

Standards Data:

Standard	Low Limit	Obtained	High Limit
CCV	0.225	0.248	0.275
FCV	0.225	0.247	0.275
ICV	0.0225	0.0242	0.0275
RLVS	0.0096	0.0114	0.0144

Duplicate Data:

Sample Number	Result	Duplicate	% RPD
181784-002	17105.000	17255.000	0.9

Recovery Data:

Sample Number	Result	Spike Level	Result + Spike	% Recovery	Dup. Result + Spike	% Dup. Recovery	% Spike RPD
LCSLCSP 1	0.000	0.035	0.037	106.0	0.038	108.3	2.1
181784-002	17105.000	972.760	18018.000	93.9			

Authorized Signature: _____

Eric Caves, Analyst



Lead Chain-of-Custody

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1850 (405) 755-7272 Fax: (405) 755-2058
www.quantem.com

Page 1 of 1
THIS BOX FOR LAB USE ONLY
Lab No. 181784
Project

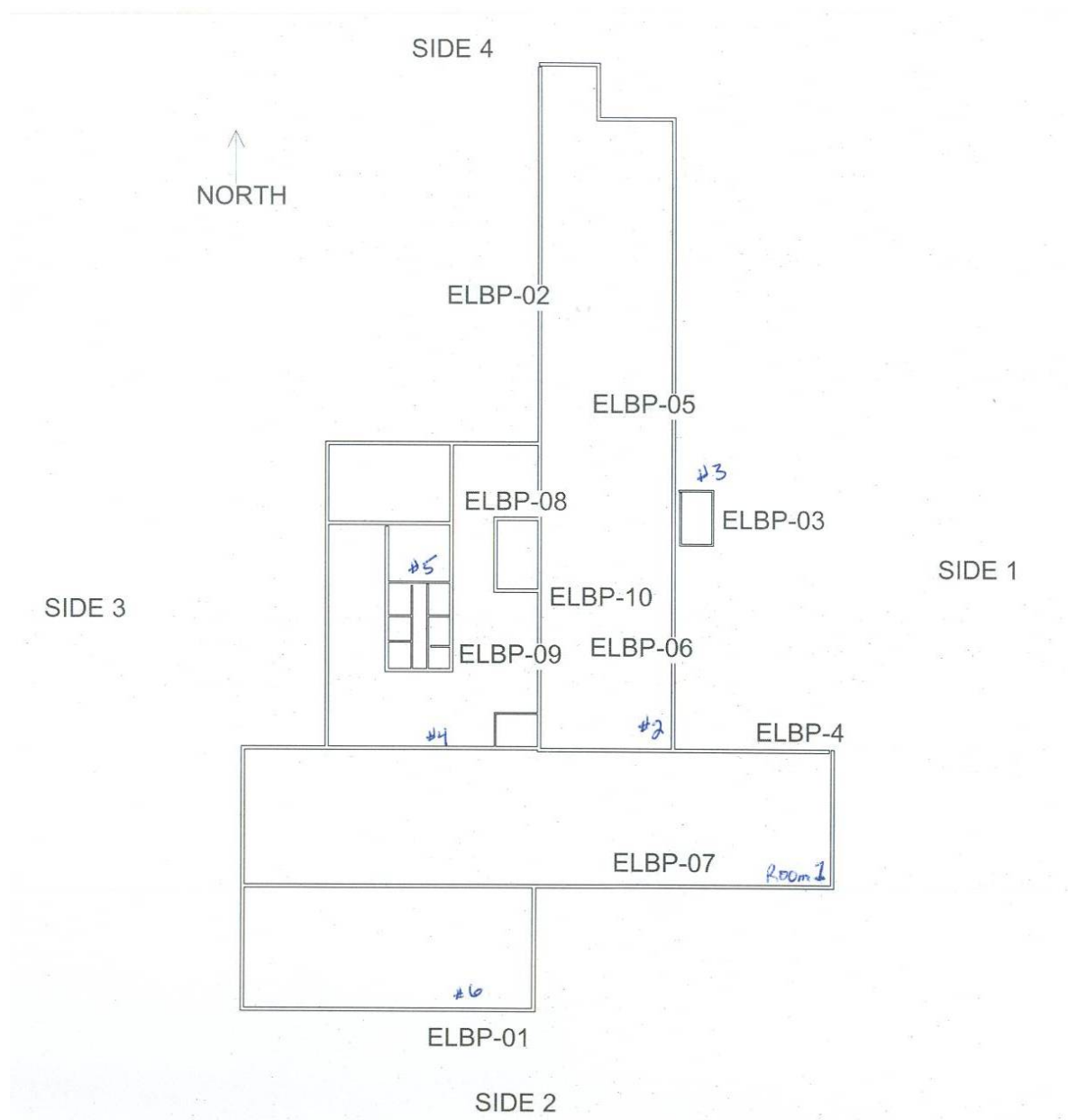
Company Name: ELCS Acct #: A389 Project Name: FUTURE
Project Location: TULSA, OK Project Number: ALL -

Sample Number	Sample Description	Volume of Area	Sample Matrix	Analysis	Units Requested	Sample Matrix Codes
FLBP-01	PAINT SHOP EXTERIOR		A			A - Soil
FLBP-02	MAIN BLOC		B			B - Paint Chips
FLBP-03	STAIRCASE DOOR/WALL		B			C - Surface / Dust Wipes
FLBP-04	NW SHED		B			D - Bulk Miscellaneous
FLBP-05	EXTERIOR WALL		B			E - Air Cassette
FLBP-06	NW BLOC		B			F - Other (SPECIFY)
FLBP-07	WEST BLOC		B			
FLBP-08	INTERIOR SHEDDOOR		B			
FLBP-09	INTERIOR I-ROCK		B			
FLBP-10	INTERIOR BLOC		B			
	LOCKER ROOM		B			
	SMALL EXTERIOR		B			
	PAINT SHOP PAINT		B			
	LOCKER ROOM		B			
	WALL / CEILING		B			

Turnaround Time
Same Day
24 Hour
<input checked="" type="checkbox"/> 3-Day
5-day

Contact Information
Name: <u>Dora Swan</u>
Phone: <u>918-747-1330</u>
Report Results Via (Choose One):
<input type="checkbox"/> FAX
<input checked="" type="checkbox"/> Quantem Website
E-Mail:

Signature: [Signature] Date: 4-21-10 Time: 4:45 PM
Sampled By: Dora Swan



Evans Building Complex

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145-

Customer: ALL Consulting

Project Name: Evans Buildings
Tulsa, OK

Site Name:

XRF and Lab Results

Action Level 1.000 mg /cm2 Lab 5000ppm

Total Assays Reported

71

#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6570	0001	Exterior	1	1	Wall	Metal	Poor	0.846 K	0.641 L	254		Neg
6571	0001	Exterior	1	2	Wall	Metal	Poor	0.482 K	0.247 L	254		Neg
6572	0001	Exterior	1	4	Wall	Metal	Poor	0.314 K	0.178 L	254		Neg
6573	0001	Exterior	1	4	Door	Metal	Poor	0.741 K	0.766 L	254	1812	Neg
6574	0001	Exterior	1	4	Door jamb	Metal	Poor	0.375 K	0.299 L	254		Neg
6575	0001	Exterior	6	1	Wall	Metal	Fair	0.451 K	0.333 L	254		Neg
6576	0001	Exterior	6	2	Wall	Metal	Fair	0.364 K	0.212 L	254	3405	Neg
6577	0001	Exterior	6	3	Wall	Metal	Fair	0.216 K	0.347 L	254		Neg
6578	0001	Exterior	6	2	Door	Metal	Fair	0.222 K	0.048 L	254		Neg
6579	0001	Exterior	6	2	Door jamb	Metal	Fair	0.316 K	0.333 L	254		Neg
6580	0001	Exterior	2	1	Wall	Metal	Poor	0.462 K	0.317 L	254		Neg
6581	0001	Exterior	2	1	Wall	Brick	Poor	0.444 K	0.128 L	254		Neg
6582	0001	Exterior	2	1	Door	Metal	Poor	0.649 K	0.548 L	254		Neg
6583	0001	Exterior	2	1	Door jamb	Metal	Poor	0.521 K	0.169 L	254		Neg
6584	0001	Exterior	2	4	Wall	Brick	Poor	0.840 K	0.701 L	254		Neg
6585	0001	Exterior	2	4	Wall	Metal	Poor	0.641 K	0.555 L	254		Neg
6586	0001	Exterior	2	3	Door	Metal	Poor	0.647 K	0.344 L	254	4513	Neg
6587	0001	Exterior	2	3	Wall	Metal	Poor	0.472 K	0.300 L	254		Neg
6588	0001	Exterior	3	1	Wall	Metal	Intact	0.147 K	0.024 L	254	<117	Neg
6589	0001	Exterior	3	1	Door	Metal	Fair	0.247 K	0.333 L	254		Neg
6590	0001	Exterior	3	1	Door	Metal	Fair	0.248 K	0.222 L	254		Neg

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145-

Customer: ALL Consulting

Project Name: Evans Buildings
Tulsa, OK

Site Name:

XRF and Lab Results

Action Level 1.000 mg /cm2		Lab 5000ppm		Total Assays Reported								71
#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6591	0001	Exterior	3	2	Wall	Metal	Fair	0.411 K	0.300 L	254		Neg
6592	0001	Exterior	3	3	Wall	Metal	Fair	0.301 K	0.199 L	254		Neg
6593	0001	Exterior	3	4	Wall	Metal	Fair	0.214 K	0.144 L	254		Neg
6594	0001	Exterior	4	4	Wall	Metal	Poor	0.347 K	0.222 L	254		Neg
6595	0001	Exterior	4	4	Door	Metal	Poor	0.415 K	0.201 L	254		Neg
6596	0001	Exterior	4	4	Door jamb	Metal	Poor	0.302 K	0.177 L	254		Neg
6597	0001	Exterior	4	3	Wall	Metal	Poor	0.307 K	0.278 L	254		Neg
6598	0001	Exterior	1	3	Wall	Metal	Poor	0.294 K	0.232 L	254		Neg
6599	0001	Exterior	1	4	Wall	Metal	Poor	0.167 K	0.111 L	254		Neg
6600	0001	Main Building	1	1	Wall	Brick	Fair	4.565 K	2.298 L	254		Pos
6601	0001	Main Building	1	1	Wall	Metal	Fair	0.888 K	0.647 L	254		Neg
6602	0001	Main Building	1	2	Wall	Brick	Fair	3.342 K	2.366 L	254	268401	Pos
6603	0001	Main Building	1	2	Wall	Metal	Fair	0.649 K	0.341 L	254		Neg
6604	0001	Main Building	1	3	Wall	Brick	Fair	4.555 K	3.200 L	254		Pos
6605	0001	Main Building	1	3	Wall	Metal	Fair	0.241 K	0.304 L	254		Neg
6606	0001	Main Building	1	4	Wall	Brick	Fair	3.601 K	3.000 L	254		Pos
6607	0001	Main Building	1	4	Wall	Metal	Fair	0.502 K	0.468 L	254		Neg
6608	0001	N/S Building	2	1	Wall	Concrete	Poor	3.503 K	2.041 L	254	45537	Pos
6609	0001	N/S Building	2	1	Red-iron I-beam	Metal	Fair	3.209 K	2.530 L	254	44323	Pos
6610	0001	N/S Building	2	2	Wall	Concrete	Poor	3.068 K	3.700 L	254		Pos
6611	0001	N/S Building	2	3	Wall	Concrete	Poor	3.620 K	4.072 L	254		Pos

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33

TULSA, OK 74145-

Customer: ALL Consulting

Project Name: Evans Buildings
Tulsa, OK

Site Name:

XRF and Lab Results

Action Level 1.000 mg /cm2		Lab 5000ppm		Total Assays Reported								71
#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6612	0001	N/S Building	2	4	Wall	Concrete	Poor	2.560 K	1.999 L	254		Pos
6613	0001	N/S Building	2	4	Red iron I-beam	Metal	Fair	2.203 K	2.465 L	254		Pos
6614	0001	Middle Building	4	1	Red iron I-beam	Metal	Fair	2.064 K	1.000 L	254		Pos
6615	0001	Middle Building	4	2	Red iron I-beam	Metal	Fair	1.476 K	1.348 L	254		Pos
6616	0001	Middle Building	4	4	Stairs	Metal	Poor	4.509 K	2.648 L	254	138988	Pos
6617	0001	Middle Building	4	4	Stairs handrail	Metal	Poor	3.333 K	2.010 L	254		Pos
6618	0001	Parts storage	7	2	Wall	Concrete	Poor	0.865 K	0.643 L	254		Neg
6619	0001	Parts storage	7	3	Wall	Concrete	Poor	0.426 K	0.301 L	254		Neg
6620	0001	Parts storage	7	4	Wall	Concrete	Poor	0.218 K	0.156 L	254		Neg
6621	0001	Parts storage	7	1	Wall	Concrete	Poor	0.194 K	0.310 L	254		Neg
6622	0001	Office exterior	5	1	Wall	Concrete	Intact	0.214 K	0.164 L	254		Neg
6623	0001	Office exterior	5	2	Wall	Concrete	Intact	0.314 K	0.200 L	254		Neg
6624	0001	Office exterior	5	3	Wall	Concrete	Intact	0.166 K	0.212 L	254		Neg
6625	0001	Office exterior	5	4	Wall	Concrete	Intact	0.147 K	0.314 L	254		Neg
6626	0001	Office	5	1	Wall	Sheetrock	Intact	-0.147 K	-0.222 L	254		Neg
6627	0001	Office	5	2	Wall	Sheetrock	Intact	-0.148 K	0.016 L	254		Neg
6628	0001	Office	5	3	Wall	Sheetrock	Intact	-0.033 K	0.000 L	254		Neg
6629	0001	Office	5	4	Wall	Sheetrock	Intact	-0.201 K	-0.144 L	254		Neg
6630	0001	Office	5	2	Door	Metal	Intact	0.300 K	0.203 L	254		Neg
6631	0001	Office	5	2	Door jamb	Metl	Intact	0.108 K	0.111 L	254		Neg
6632	0001	Office	5	3	Door	Wood	Intact	-0.064 K	-0.100 L	254		Neg

ENVIRONMENTAL HAZARD
6539 E. 31ST STREET, SUITE 33
TULSA, OK 74145-

XRF and Lab Results

Customer: ALL Consulting

Project Name: Evans Buildings

Site Name:

Action Level 1.000 mg /cm2				Lab 5000ppm		Total Assays Reported					71	
#	Site	Room Tested	#	Wall	Component	Substrate	Paint Condition	K-Shell mg/cm2	L-Shell mg/cm2	Map #	Lab	Result
6633	0001	South Building	6	1	Wall	Metal	Fair	0.214 K	0.088 L	254	1219	Neg
6634	0001	South Building	6	2	Wall	Metal	Fair	0.348 K	0.201 L	254		Neg
6635	0001	South Building	6	3	Wall	Metal	Fair	0.214 K	0.264 L	254		Neg
6636	0001	South Building	6	4	Wall	Metal	Fair	0.184 K	0.346 L	254		Neg
6637	0001	South Building	6	2	Red iron I-beam	Metal	Fair	6.287 K	7.000 L	254	71771	Pos
6638	0001	Calibration	*	*	*	*	*	1.476 K	1.480 L	254		Pos
6639	0001	Calibration	*	*	*	*	*	1.486 K	1.490 L	254		Pos
6640	0001	Calibration	*	*	*	*	*	1.496 K	1.482 L	254		Pos



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Environmental Chemistry Analysis Report

QuantEM Set ID: 181786
Date Received: 04/21/10
Received By: Barbara Holder
Date Sampled:
Time Sampled:
Analyst: EC
Date of Report: 4/23/2010

Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Acct. No.: A389

Project: Evans Building

Location: Tulsa, OK

Project No.: ALL-2921

AIHA ID: 101352

QuantEM ID	Client ID	Matrix	Parameter	Results	Reporting Limits	Units	Date/Time Analyzed	Method
001	ELBP-01	Paint	Lead	3405	117	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
002	ELBP-02	Paint	Lead	4513	115	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
003	ELBP-03	Paint	Lead	<117	117	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
004	ELBP-04	Paint	Lead	1812	111	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
005	ELBP-05	Paint	Lead	268401	114	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
006	ELBP-06	Paint	Lead	44323	118	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
007	ELBP-07	Paint	Lead	45537	114	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
008	ELBP-08	Paint	Lead	138988	115	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
009	ELBP-09	Paint	Lead	1219	120	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420
010	ELBP-10	Paint	Lead	71771	119	ppm	04/23/10 16:40	EPA600/R-93/200 / EPA 7420

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.



2033 Heritage Park Drive / Oklahoma City, OK 73120 / (405) 755-7272 / Fax (405) 755-2058

Environmental Chemistry Analysis Report

QuantEM Set ID: 181786
Date Received: 04/21/10
Received By: Barbara Holder
Date Sampled:
Time Sampled:
Analyst: EC
Date of Report: 4/23/2010

Client: Environmental Hazard Control, Inc.
6539 E. 31st Street, Suite 33
Tulsa, OK 74145

Acct. No.: A389

Project: Evans Building

Location: Tulsa, OK

Project No.: ALL-2921

AIHA ID: 101352

QuantEM ID	Client ID	Matrix	Parameter	Results	Reporting Limits	Units	Date/Time Analyzed	Method
---------------	-----------	--------	-----------	---------	---------------------	-------	-----------------------	--------

Authorized Signature: _____

A handwritten signature in black ink, appearing to be "EC", written over a horizontal line.

Eric Caves, Analyst

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.

Supplemental Report QAQC Results

QA ID: 7498
Test: Lead

Date: 4/23/2010
Matrix: Paint

Lab Number: 181786
Approved By: Eric Caves
Date Approved: 4/23/2010

Notes:

Blank Data:

Type of Blank	Blank Value
Initial	0
Continuing	0
Final	0

Standards Data:

Standard	Low Limit	Obtained	High Limit
CCV	0.225	0.248	0.275
FCV	0.225	0.247	0.275
ICV	0.0225	0.0242	0.0275
RLVS	0.0096	0.0114	0.0144

Duplicate Data:

Sample Number	Result	Duplicate	% RPD
181784-002	17105.000	17255.000	0.9

Recovery Data:

Sample Number	Result	Spike Level	Result + Spike	% Recovery	Dup. Result + Spike	% Dup. Recovery	% Spike RPD
LCSLCSP 1	0.000	0.035	0.037	106.0	0.038	108.3	2.1
181784-002	17105.000	972.760	18018.000	93.9			

Authorized Signature: _____

Eric Caves, Analyst



Lead Chain-of-Custody

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 (405) 755-7272 Fax: (405) 755-2058
www.quantem.com

Page 1 of 1

Lab No. 181786
Project 2009

Company Name: EHCI Project Name: EVANS BUILDING
Project Location: TULSA, OK Project Number: ALL-2921

Sample Number	Sample Description	Volume of Area	Sample Matrix	Analysis	Units Requested	Sample Matrix Codes
ELBP-01	SOUTH EXTERIOR WHITE WALLS		B	P	mg / cm ²	A - Soil
ELBP-02	EXTERIOR SILVER WALL/DOORS		B	K	mg / sq. ft.	B - Paint Chips
ELBP-03	EXTERIOR PINK STUCCO/BLDG		B	K	mg / sq. ft.	C - Surface / Dust Wipes
ELBP-04	EXTERIOR DOOR YELLOW		B	K	mg / sq. ft.	D - Bulk Miscellaneous
ELBP-05	INTERIOR BRICK HALL WALL/DOOR		B	K	mg / sq. ft.	E - Air Cassette
ELBP-06	INTERIOR RED T-BEDDING PAINT		B	K	mg / sq. ft.	F - Other (SPECIFY)
ELBP-07	INTERIOR GREEN SCULPTURE STEEL WALL		B	K	mg / sq. ft.	
ELBP-08	INTERIOR YELLOW STAIRS PAINT		B	K	mg / sq. ft.	
ELBP-09	INTERIOR SILVER WALL/DOOR PAINT		B	K	mg / sq. ft.	
ELBP-10	INTERIOR YELLOW T-BEDDING PAINT		B	K	mg / sq. ft.	

LEGAL DOCUMENT
Please Print Legibly

TURNAROUND TIME
Same Day
24 Hour
3-Day ☒
5-day

CONTACT INFORMATION
Name: Dean Swan
Phone: 918-747-1330
Report Results VIA (CHOOSE ONE):
☐ FAX
☒ Quantem WebSite
☐ E-Mail

Signature: [Signature] Date: 4-21-10
Sampled By: Dean Swan
Date: 4/10/2009

Saturday FedEx Shipping - CALL TO SCHEDULE
Use this address for Saturday FedEx only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-5517
Mark Package 'HOLD FOR SATURDAY PICKUP'

APPENDIX B

SITE PHOTOGRAPHS



Sample FLBP-01



Sample FLBP-02



Sample FLBP-03



Sample FLBP-04



Sample FLBP-05



Sample FLBP-06



Sample FLBP-07



Sample FLBP-08 & FLBP-10



Sample FLBP-09



Sample ELBP-01



Sample ELBP-02



Sample ELBP-03



Sample ELBP-04



Sample ELBP-05



Sample ELBP-07



Sample ELBP-08



Sample ELBP-09

APPENDIX C

STATE LICENSES

Department of Environmental Quality

This is to Certify That

ENVIRONMENTAL HAZARD CONTROL INC

has met the specifications of the Oklahoma Lead-Based Paint Management Act
and is certified as a Lead-Based Paint

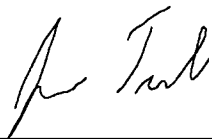
FIRM

Certification #: OKFIRM11224

This certificate is valid from the date of issuance and expires as prescribed by law.

Issued on: 4/1/2010

Expires on: 3/31/2011



Division Director
Air Quality Division



Environmental Programs Manager
Air Quality Division

Department of Environmental Quality

This is to Certify That

ROBERT SWAIN

has met the specifications of the Oklahoma Lead-Based Paint Management Act
and is certified as a Lead-Based Paint

INSPECTOR/RISK ASSESSOR

Certification #: OKRASR11105

This certificate is valid from the date of issuance and expires as prescribed by law.

Issued on: **4/1/2010**

Expires on: **3/31/2011**

[Signature]

Division Director
Air Quality Division



[Signature]

Environmental Programs Manager
Air Quality Division

For this report a “Positive” refers to a sample that has lead concentration of greater than 1.0 mg/cm² by XRF reading or 5,000 ppm by paint-chip analysis. “Negative” refers to a sample that has a lead concentration of less than 1.0 mg/cm² by XRF reading or 5,000 ppm by paint-chip analysis.

The following information is pertinent to this report:

1. Lead was banned in residential and commercial used paint in 1978.
2. The Fintube and Evans Buildings were built prior to 1978.
3. There were 73 XRF samples collected and analyzed from Fintube buildings. There were 71 XRF samples collected and analyzed from Evans buildings.
4. There were twenty (20) paint chip samples collected and analyzed, ten from Fintube buildings and ten from Evans buildings.
5. Lead above the permissible level of 1.0 mg/cm² or 5,000ppm **was found** within the sampled areas as follows:

Fintube Buildings

- Exterior large sliding doors paint, east wall main building, south wall main building, and west building north wall,
- Exterior and Interior Red iron I-beams columns
- Interior yellow painted stairs along east wall

Evans Buildings

- Interior half wall brick paint
 - Interior I-beam columns (red)
 - Interior green concrete stem wall paint
 - Interior yellow stairs paint
 - Interior I-beam columns (yellow)
6. Lead was found in some concentration in almost all painted surfaces so therefore OSHA regulations will be required to be followed when working with these painted surfaces.
 7. No substrate correction was necessary.
 8. Walls are numbered in a clockwise manner starting with wall 1 being address side.
 9. HUD Guidelines classifies painted surface conditions using the following standards:

Type of Building Component	Intact (Good)	Fair	Poor
Exterior components with large surface areas	Entire surface is intact	Less than or equal to 10 square feet.	More than 10 square feet.
Interior components with large surface areas	Entire surface is intact.	Less than or equal to 2 square feet.	More than 2 square feet.
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim).	Entire surface is intact.	Less than or equal to 10 percent of the total surface area of the component.	More than 10 percent of the total surface area of the component.

3. Lead Abatement and Cost Estimate

Based on the assumption that these sites will be renovated and re-used, we recommend the incorporation of paint stabilization (repainting) of all lead materials identified both above the EPA threshold and below.

Paint Stabilization (minimal surface preparation and re-paint of all painted surfaces)

Item	Estimated Cost
Labor, Overhead, Profit	\$120,000.00
Air Monitoring (2 days, NEA)	\$1000.00
Supplies and Materials	\$50,000.00
Disposal and Transportation	\$0.00
Scaffolding, equipment, miscellaneous	\$25,000.00
Water, Electric, and Sewer	\$1000.00
Equipment Rental	\$10,000.00
Total Cost	\$207,000.00

Or as an alternative, the complete abatement of only EPA and HUD defined lead based paint (above 5,000ppm or 1.0 mg/cm²) following OSHA requirements of 29 CFR 1926.62 are as follows:

Complete Abatement (wet removal methods, i.e. water blasting or wet scraping)

Item	Estimated Cost
Labor, Overhead, Profit	\$65,000.00
Air Monitoring (2 days, NEA)	\$1,000.00
Supplies and Materials	\$10,000.00
Disposal and Transportation	\$15,000.00
Scaffolding, equipment, miscellaneous	\$10,000.00
Water, Electric, and Sewer	\$2,500.00
Equipment Rental	\$5,000.00
Total Cost	\$108,500.00

3.1 Lead OSHA Requirements: Lead in Construction Standard 1926.62

General requirements if some sort of lead abatement activity is used

- ☐ OSHA action level for lead is 30 µg/m³ and the PEL is 50 µg/m³ both calculated as an 8-hour TWA.
- ☐ Institute work practice controls of wet scraping, component replacement or other activity to reduce air dust and debris during lead paint removal. Have hand and face washing facilities available on-site. Notify other contractors/subcontractors about lead hazard at job-site.
- ☐ OSHA Lead training is only required for employees who are subjected to exposure to Lead at or above the action level on any day or who are subject to exposure to compounds which may cause skin or eye irritation. However, I would recommend a 30-minute to an hour or so tool box meeting on lead, controlling dust during activities, and proper disposal of these materials.
- ☐ Medical surveillance is only required for employees who are subjected to exposure to lead at or above the action level on any day.

Specific Requirements

- ❑ First off contractor will be required to conduct an exposure assessment for the chosen work activities to see if they exceed the action limit of 30 m/cm³.
- ❑ Protection of workers during assessment period shall include full body disposable coveralls (Tyveks or Kleenguard suits) and half-mask air purifying respirators with HEPA cartridges. Wet scraping of lead paint would be perceived as a low risk work activity and therefore only require a half-mask air purifying respirator. To wear a respirator an employee must be deemed medically fit to wear a respirator, be trained, be part of written respiratory program, and be fit tested for size and make of respirator.
- ❑ If the initial determination proves employee exposure is below the action level, further exposure determination need not be repeated unless there is a change in processes or controls. No other requirements necessary and no PPE necessary.
- ❑ If employee exposure is at or above the action level, but at or below the PEL, the contractor must perform monitoring at least every 6 months and continue until at least two consecutive measurements—taken at least 7 days apart—are below the action level. In addition, training requirements according to 29 CFR 1926.62(l) which is typically an 8-hour course with annual refresher. PPE is not required unless above the PEL. Medical surveillance is not required at this level unless exposures occur at or above the action level for more than 30 days in any consecutive 12 months.
- ❑ If an employee exposure is at or above the PEL, the contractor must perform monitoring quarterly and continue until at least two consecutive measurements—taken at least 7 days apart—are at or below the PEL but at or above the action level. The contractor then must repeat and continue monitoring every 6 months to bring the exposure to or below the action level. Competent person supervision, full training, development of a compliance program, hygiene facilities, use of PPE including respirators, posting of warning signs, and medical surveillance kick in at this level.
- ❑ Waste products would have to be TCLIP. Lead containing waste that equals or exceeds the RCRA limit must be transported to a hazardous waste treatment, storage, or disposal facility.

Appendix H

IDW Report



Generator's Nonhazardous Waste Profile Sheet

D. Regulatory Status (Please check appropriate responses)

1. Is this a USEPA (40 CFR Part 261)/State hazardous waste? If yes, contact your sales representative. ☐ Yes ☒ No
2. Is this waste included in one or more of categories below (Check all that apply)? If yes, attach supporting documentation. ☐ Yes ☒ No
 - ☐ Delisted Hazardous Waste ☐ Excluded Wastes Under 40 CFR 261.4
 - ☐ Treated Hazardous Waste Debris ☐ Treated Characteristic Hazardous Waste
3. Is the waste from a Federal (40 CFR 300, Appendix B) or state mandated clean-up? If yes, see instructions. ☐ Yes ☒ No
4. Does the waste represented by this waste profile sheet contain radioactive material? ☐ Yes ☒ No
 - a. If yes, is disposal regulated by the Nuclear Regulatory Commission? ☐ Yes ☒ No
 - b. If yes, is disposal regulated by a State Agency for radioactive waste/NORM? ☐ Yes ☒ No
5. Does the waste represented by this waste profile sheet contain concentrations of regulated Polychlorinated Biphenyls (PCBs)? ☐ Yes ☒ No
 - a. If yes, is disposal regulated under TSCA? ☐ Yes ☒ No
6. Does the waste contain untreated, regulated, medical or infectious waste? ☐ Yes ☒ No
7. Does the waste contain asbestos? ☐ Yes ☒ No If Yes, ☐ Friable ☐ Non Friable
8. Is this profile for remediation waste from a facility that is a major source of Hazardous Air Pollutants (Site Remediation NESHAP, 40 CFR 63 subpart GGGGG)? ☐ Yes ☒ No

If yes, does the waste contain <500 ppmw VOHAPs at the point of determination? ☐ Yes ☒ No

E. Generator Certification (Please read and certify by signature below)

By signing this Generator's Waste Profile Sheet, I hereby certify that all:

1. Information submitted in this profile and all attached documents contain true and accurate descriptions of the waste material;
2. Relevant information within the possession of the Generator regarding known or suspected hazards pertaining to this waste has been disclosed to WM/the Contractor;
3. Analytical data attached pertaining to the profiled waste was derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules; and
4. Changes that occur in the character of the waste (i.e. changes in the process or new analytical) will be identified by the Generator and disclosed to WM (and the Contractor if applicable) prior to providing the waste to WM (and the Contractor if applicable).
5. Check all that apply:
 - ☒ Attached analytical pertains to the waste. Identify laboratory & sample ID #'s and parameters tested: Already sent in # Pages: _____
 - ☐ Only the analyses identified on the attachment pertain to the waste (identify by laboratory & sample ID #'s and parameters tested). Attachment #: _____
 - ☐ Additional information necessary to characterize the profiled waste has been attached (other than analytical). Indicate the number of attached pages: _____
 - ☐ I am an agent signing on behalf of the Generator, and the delegation of authority to me from the Generator for this signature is available upon request.
 - ☐ By Generator process knowledge, the following waste is not a listed waste and is below all TCLP regulatory limits.

Certification Signature: Charles McCombs

Title: Project Manager

Company Name: ALL Consulting

Name (Print): Charles McCombs

Date: 6-2-2010

FOR WM USE ONLY

Management Method: ☐ Landfill ☐ Bioremediation

Approval Decision: ☐ Approved ☐ Not Approved

☐ Non-hazardous solidification ☐ Other: _____

Waste Approval Expiration Date: _____

Management Facility Precautions, Special Handling Procedures or Limitation

on approval: _____

☐ Shall not contain free liquid

☐ Shipment must be scheduled into disposal facility

☐ Approval Number must accompany each shipment

☐ Waste Manifest must accompany load

WM Authorization Name / Title: _____

Date: _____

State Authorization (if Required): _____

Date: _____